SLADE NWR
NARRATIVE REPORT YEAR - 1967

SLADE NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

1967

REGULAR PERSONNEL

Marvin Mansfield	-	Refuge Manager
Karl L. Hansen	-	Assistant Refuge Manager
Gerald D. Olson	-	Clerk (Typing)
Theodore Schauer	-	Laborer-Maintenance

TEMPORARY EMPLOYEES

Glen R. Eyre	-	Biological Aid (Student)
Alvin L. Hottman	-	Laborer

C O N T E N T S

NARRATIVE REPORT

SLADE NATIONAL WILDLIFE REFUGE

DAWSON, NORTH DAKOTA

CALENDAR YEAR 1967

I. GENERAL

A. Weather Conditions.

	Snowfall	Precipitation This Month	Precipitation Normal*	Max. Temp.	Min. Temp.
January	19.5	.76	.45	42	-30
February	15.5	.70	.36	46	-23
March	11.9	.62	.57	79	-13
April	12.0	2.40	1.23	67	6
May	11.0	1.54	2.43	88	12
June		1.02	3.77	90	43
July		.33	2.60	101	37
August		.65	2.08	99	41
September		1.22	1.55	87	25
October		2.00	1.17	79	20
November	1.0	.04	.56	59	- 5
December	16.5	.89	.33	53	-37
Totals	87.4	12.17	17.10	Ext. 101	-37

*Based on years 1931 - 1960.

The information contained in the above table was obtained from the records of the official U. S. Weather Bureau Station located eight miles west of the refuge in Steele.

This was a year of heavy snowfall, severe drought conditions during the growing season, and extreme low temperatures in late December.

January started with about 1" of snow on the ground. This increased to a peak of 10" on the 16th, the same as the February peak on the 23rd. It gradually declined to a March high of 5". This soon disappeared, and only small amounts were present until April 30 when a severe blizzard dumped 4". This storm continued on May 1 and an estimated peak depth of 6" was reached. The Steele Weather Station reported 10" on the ground. The snow soon disappeared only to be followed by 2" more on the 10th. This was finally the end of a long winter.

The first fall snowfall, amounting to one-half inch, came on November 3 and 4. No snow was on the ground at the end of the month. Snow fell on eight days in December with the greatest amount, 5" on the 20th. There was about 12" on the ground at the end of the year.

From the first of the year, temperatures were on the mild side until May when record lows were reported. It was the 6th coldest May ever recorded at Bismarck. Steele had a low of 12 on the 2nd.

On July 3, Steele recorded a low of 37°, but it actually froze in low spots on the refuge as the manager lost most of his garden. The last spring frost was on May 15, while the first fall frost was on September 21.

Fall temperatures were mild except from November 3 - 6 when all water bodies froze over. No temperature below zero was recorded until December 14 when it reached 5° below. Temperatures were very cold from Christmas through the end of the year with 30° below on the 30th and 37° below on the 31st.

Precipitation was nearly 5" below normal, with the period from May 12 through September 9 recording only 2.06". That makes it one of the driest growing periods on record. October moisture was high enough to make a good ground seal at freeze-up. The heavy December snow coupled with expected late winter snow, should provide a good runoff.

The April 30 - May 1 blizzard was one of the worst on record for so late in the season. It started in the southwest part of the state early on the morning of April 29 with rain turning to sleet and finally snow, with winds reaching 70 mph.

Snowfall reached depths of 15" with the greatest depths across the state from the southwest to the northeast. The Bismarck snowfall of 11" set a record for so late in the spring.

The freezing rain in the early part of the storm, coupled with high wind, caused property damage estimated at $700,000. Over 50 communities were without power or phone service. Some had neither.

B. Habitat Conditions.

1. Water.

Spring water conditions were good, but the severe drought caused a rapid decline until by early August the situation was

reversed. At freeze-up all water areas were below the level of a year ago, with Harker Lake and Headquarters Lakes down over one foot. (See Table Number 1.)

TABLE NUMBER 1

MSL Elevation

Slade Refuge Pools

	January		December		Maximum	
	1967	1966	1967	1966	1967	1966
Harker Lake	1732.27	1731.93	1731.21	1732.27	1732.88	1733.17
Upper Harker	1731.76	1731.85	1731.00	1731.76	1732.65	1732.66
South Marsh	1732.73	1732.36	1732.38	1732.73	1734.36	1734.09
NW Slough	1721.69	1722.20	1720.99	1721.69	1722.79	1723.02
Hdqtrs. Lakes	1726.82	1726.55	1725.81	1726.82	1727.79	1727.62
SE Slough	1734.52	1735.27	1733.98	1734.52	1736.48	1735.96

No water was allowed to flow into Harker Lake through the culverts and only a small amount entered via dike seepage. This resulted in summer and fall elevations which were about right, and good loafing sites were provided. The reduced level should encourage hardstem bulrush growth.

With the Harker Lake culverts closed the excess water went into South Marsh and then Lake Isabel. South Marsh attained a new peak since the dike was constructed, but only a trickle passed through the emergency spillway. Only the high (north) culvert was used to pass water into Lake Isabel.

For the first time in recent years, no water flowed into or out of Northwest Slough in the fall. The flow sometimes stops in the summer, but it usually resumes in the fall because of the flow from springs, and reduced evaporation.

Except for Recreation Slough, all small water areas went dry during the summer.

2. Food and Cover.

Of the larger water bodies, South Marsh continues to provide the best food (submerged aquatics) and cover for waterfowl. It contains a good mixture of hardstem bulrush, phragmites, cattail, open water, and loafing sites.

The west portion of Headquarters Lakes and the small pothole in G-4 also contain excellent food and cover for ducks.

Outside of wet areas food was adversely affected by the drought. Corn was nearly a total loss and the small grain yield was poor. Even with this there was plenty of small grain available because some of the crop was not worth harvesting. The production of wild berries, fruits, and weed seeds was much below normal.

Plant growth also suffered, and cover provided by sweet clover, alfalfa, grasses and weeds was inadequate. Add to this the removal of nearly all soil bank cover for emergency hay, and the result is the crowding of wildlife into smaller cover areas.

On January 5 a load (180 bushels) of barley was picked up at Snake Creek Refuge and spread on the ice on the east portion of Headquarters Lakes. In early March more barley was spread on the ice in the following amounts:

West portion South Marsh	72 bu.
West portion Hdqtrs. Lakes	118 bu.
Recreation Area Slough	50 bu.
Upper Harker Lake	75 bu.

This made a total of 495 bushels of barley available when the birds returned in the spring. They really went for this feed and by the end of April it was nearly all gone. How much the birds benefit from this is debatable, but it is good for public relations as more people are coming to view the ducks and swans. For a 2 - 3 week period in April there were about 200 swans and 2,000 ducks feeding in the east part of Headquarters Lakes. They can be easily viewed from the entrance road.

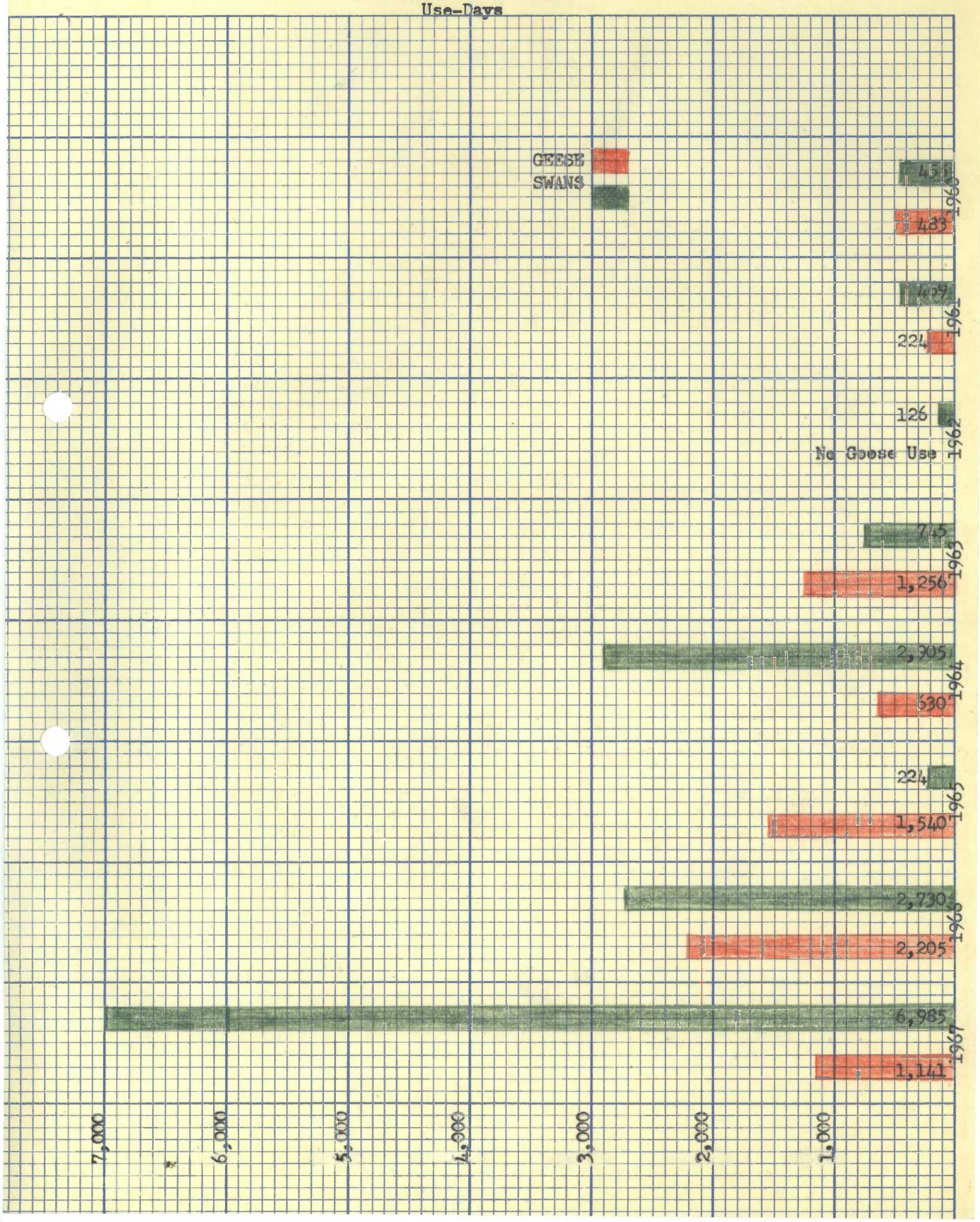
II. WILDLIFE

A. Migratory Birds.

1. Geese and Swans.

Goose use dropped to about half of 1966 while swan use more than doubled the previous high set in 1964. (See Graph No. 1.)

GRAPH NUMBER 1
Annual Goose and Swan
Use-Days



This refuge has never had much goose or swan use so the build-up in swans is of particular interest. In previous years (except 1966), swans confined their use to Harker and Upper Harker Lakes in the fall, and seldom were seen in the spring. In 1966, spring use surpassed fall use 1750 days to 980 days. This trend increased in 1967 to 4,060 days and 1,890 days respectively. The birds were feeding in Headquarters Lakes (east) and resting in Harker Lake.

It is likely this increase and change in use is a result of feeding that was started in 1964. In that year, 225 bushels of barley was placed on the ice in March, but none was put in Headquarters Lakes. In 1965 about 45 bushels of barley was spread in Headquarters Lakes (east), but no swans found the grain.

In 1966 a total of 300 bushels of wheat and barley (mostly barley) was spread on the ice in Headquarters Lakes, and a peak of 140 swans used the grain. This year as many as 235 swans fed on the grain in Headquarters Lakes.

Fall swan use was 1,890 days compared to 980 in 1966. The peak was 101 swans on October 30. The last swans (30) were observed on November 5.

Spring goose use was limited to 10 white-fronts on April 14. The first geese observed in the fall were 12 small Canadas on September 29. The peak was 35 small Canadas on October 4, while 10 white-fronts were seen on October 7. The last observation was 6 small Canadas on October 30.

2. Ducks.

The first ducks (7 mallards) were observed on March 22, a week later than last year. Forty pintails were recorded on the 24th and by April 14 all species were present except ruddy ducks.

The peak spring count of 4,930 was reached the week of April 9 - 15. This compares with 4,470 last April 24 - 30.

Table Number 2 illustrates the peak count of common ducks (by species) present during the spring period.

Note: This table is not related to the weekly count.

TABLE NUMBER 2

Peak Spring Population of Common Ducks

	1962	1963	1964	1965	1966	1967
Mallard	70	180	190	235	370	600
Gadwall	100	110	170	70	200	290
A. widgeon	40	90	100	100	150	585
Pintail	40	140	70	185	200	320
BW teal	120	120	70	60	210	140
Shoveler	60	60	80	20	150	100
Total Dabblers	430	700	680	670	1,280	2,035
Redhead	40	80	1,420	1,870	325	1,260
Ring-necked		30	10	25	70	60
Canvasback	80	40	530	680	365	290
Scaup	300	1,100	1,010	2,040	2,060	1,490
Ruddy	20	10	80	40	70	120
Total Divers	440	1,260	3,050	4,655	2,890	3,220
Total Ducks	870	1,960	3,730	5,325	4,170	5,255

The table shows that all dabblers listed except blue-winged teal and shovelers reached their highest peak in recent years. The only diver that fits this statement is the ruddy duck.

As mentioned in the swan section, the first artificial feeding was started in the spring of 1964. There was an immediate response to this feed by divers, but the dabblers did not show an increase until 1966. (See Table Number 2.)

The fall peak of 2,234 was reached in late October and consisted of mostly mallards. An unusual occurrence was the canvasback peak (360) was much higher than the scaup peak (70). In 1966 they peaked at 30 and 40 respectively. Usually there are several hundred scaup and less than 100 cans.

One breeding pair count was made starting on May 23 and ending on May 29. The walk-wade method was used in all water areas that could not be counted from a vehicle. Table Number 3 compares the breeding pair count for the past three years.

TABLE NUMBER 3

Duck Breeding Population

PAIRS

	1965	1966	1967
Mallard	18	35	44
Gadwall	17	25	24
A. widgeon	3	7	0
Pintail	4	12	9
GW teal	0	0	3
BW teal	22	55	70
Shoveler	10	15	38
Total Dabblers	74	149	188
Redhead	5	15	12
Canvasback	6	15	4
Scaup	11	15	5
Ruddy	20	6	1
Total Divers	42	51	22
Totals	116	200	210

Two brood counts were run, July 12, 14 and August 16. Map Number 1 shows the route and five minute scan sites. Table Number 4 compares observed broods with estimated broods for the past three years.

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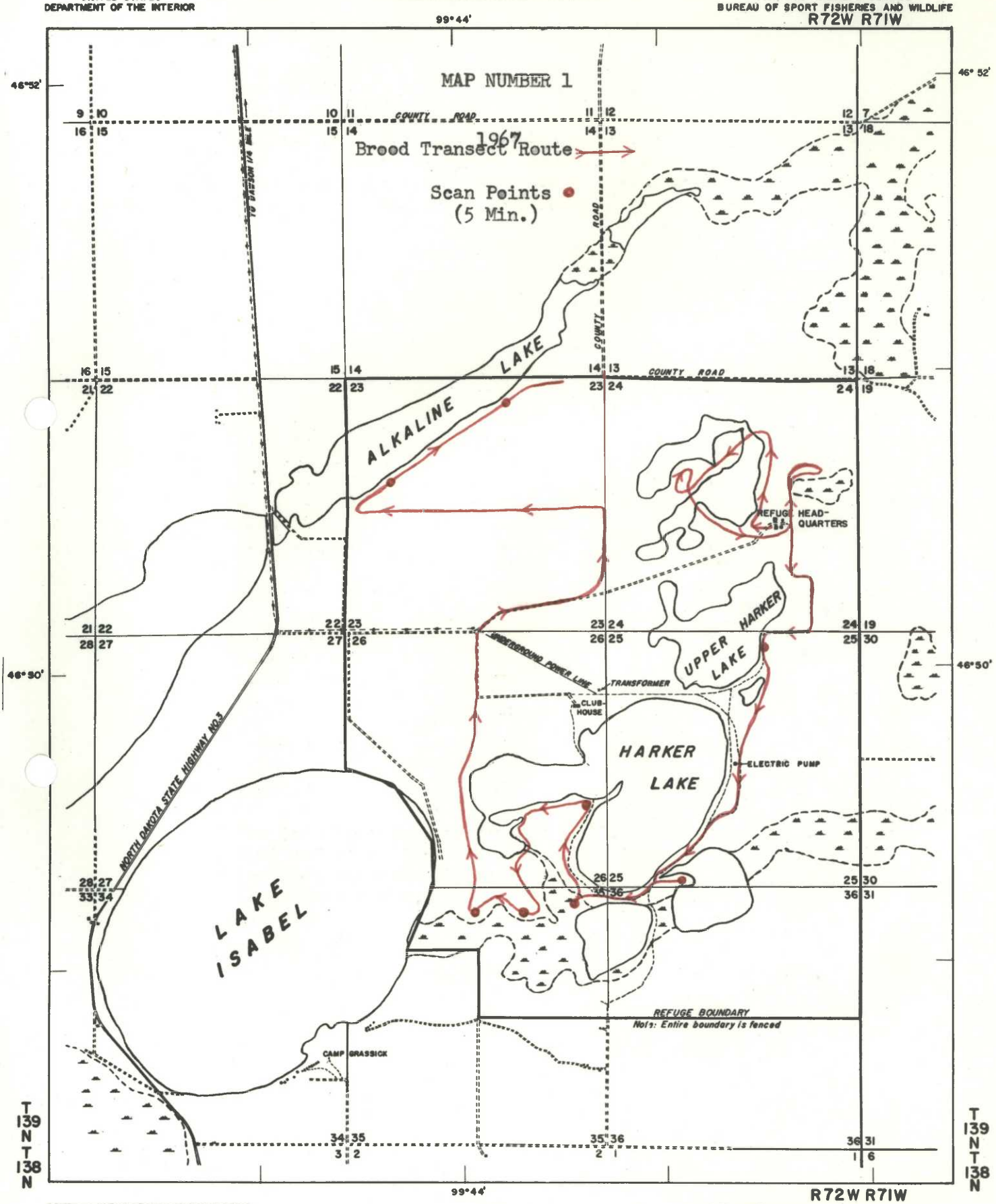

COMPILED IN THE BRANCH OF ENGINEERING

MINNEAPOLIS, MINNESOTA MARCH, 1960

FIFTH PRINCIPAL MERIDIAN

Scale 20 0 20 40 60 CHAINS
1/4 0 1/4 1/2 3/4 MILES

TOWNSHIP DIAGRAM

MEAN DECLINATION 1960

3R N.D. 394 408

TABLE NUMBER 4

Duck Broods

	Observed Broods			Estimated Broods		
	1965	1966	1967	1965	1966	1967
Mallard	7	6	6	11	15	22
Gadwall	8	1	8	12	12	25
A. widgeon	0	1	0	1	3	0
Pintail	0	0	1	2	4	5
BW teal	5	6	8	9	20	22
Shoveler	1	1	2	3	5	5
Total Dabblers	21	15	25	38	59	79
Redhead	0	3	2	1	7	5
Canvasback	2	4	2	3	7	5
Scaup	3	4	1	5	7	3
Ruddy	8	1	1	10	3	3
Total Divers	13	12	6	19	24	16
Totals	34	27	31	57	83	95

The estimated total of 95 broods and 210 pairs gives a productivity level of 45%. These figures were used to meet the May - August NR-1 and NR-1B deadline.

On January 24, 1968 M. C. Hammond (area biologist) advised North Dakota managers that based on data available a productivity level of 30% should be used for all duck species. If this is true, then the refuge produced 63 broods or 378 young. Estimated production for the past six years is shown in Table Number 5.

TABLE NUMBER 5

Estimated Production

	1962	1963	1964	1965	1966	1967
Mallard	46	38	50	75	90	130
Gadwall	119	60	30	105	75	150
A. widgeon	11	11	5	10	15	
Pintail	19	19	30	10	20	30
BW teal	122	68	55	60	120	130
Shoveler	19	13	15	20	25	30
Redhead	19	13	10	5	40	30
Canvasback			20	20	40	30
Scaup			4	30	40	15
Ruddy	8	7	40	50	15	15
Totals	363	229	259	385	480	560

Use-days showed a nice increase over last year but the total was still well below the peak. The January-April period continues to rise, possibly as a result of the artificial feeding. (See Table Number 6.)

TABLE NUMBER 6

Duck Use-Days By Season

	1962	1963	1964	1965	1966	1967
January-April	13,860	39,270	48,545	49,490	54,425	89,670
May-August	54,720	47,740	50,113	35,595	86,170	119,945
September-December	341,880	50,232	305,389	98,252	41,370	74,760
Totals	410,460	137,242	404,047	183,337	181,965	284,375

3. Coots.

Total coot use-days reached the highest ever recorded. The peak fall population of 1,200 was well below last years record of 1,630, but use was up because about 1,000 coots were here for five weeks. Most use took place in Northwest Slough.

The breeding population was estimated at 50, and production at 70.

Table Number 7 shows use-days by season.

TABLE NUMBER 7

Coot Use-Days By Season

	1962	1963	1964	1965	1966	1967
January-April	980	2,310	700	0	105	490
May-August	2,770	8,120	7,630	4,480	6,685	17,850
September-December	12,180	3,570	6,790	9,030	32,130	45,920
Totals	15,930	14,000	15,120	13,510	38,920	64,260

4. Water and Marsh Birds.

The cormorant peak of 350 on October 5 surpasses the previous record high of 300 set in 1959. It compares with 30 last year and 121 in 1965. They spent nearly all of their time in Harker Lake. One was still present on October 18.

The white pelican peak of 35 was down from the 55 recorded last year. They also spent most of their time in Harker Lake.

Pied-billed grebes were again the most numerous grebe, followed by the eared, western, and horned grebes, in that order. No red-necked grebes were seen this year.

Five great blue herons were observed on September 11 compared to a peak of seven in 1966 and eight in 1965.

On April 5 there were 60 sandhill cranes observed feeding in the corn strip in A-4. Cranes numbering between 12 and 60 were here from March 30 to April 11. It is very unusual to observe cranes on the refuge, and this is by far a new record. Fifteen cranes were observed in South Marsh on May 2. They were pinned down for a day or two by the late blizzard. It is doubtful they would have stopped without the storm.

The fall crane peak north of Dawson was about 10,000, which is a slight increase over last year.

5. Shorebirds, Gulls, and Terns.

Gull numbers were low again this year except for ring-billed gulls which increased to 300. Franklin's and herring gulls were below last year. No gulls were known to have nested here.

Four killdeer were observed in late April, but none were seen after the blizzard until July 18. No nests or young were seen.

About 10 - 15 avocets and marbled godwits used the refuge with no young being observed. Only one willet was observed during the year.

6. Mourning Doves.

The estimated dove peak of 75 compares with 135 for 1966. They were hard hit by the blizzard and a fair percentage died as a result. Luckily, less than half the breeding population was here when the storm struck. Production is estimated at 50.

B. Upland Game Birds.

1. Ring-necked Pheasant.

The pheasant population remains low and is estimated at 30 at the close of the year. Only one brood was observed, and production is estimated at 20.

2. Sharp-tailed Grouse.

Grouse numbers remained about the same as last year. They are making good use of the 1966 corn strip that still provides some food. No broods were observed but production is estimated at 25.

The dancing ground was checked on April 13 when nine males were counted, and on May 3 when seven were counted. This compares with six last year, and twelve in 1965. The ground was mowed in August for fall use and to be sure it is ready for spring.

3. Gray Partridge.

"Hun" numbers have also changed little from last year. Only one brood was observed and production is estimated at 20. On December 12 a covey of seven was observed near headquarters, and on the 25th a covey of twelve was observed near A-4.

4. Pinnated Grouse.

No "Pinnates" were observed on the refuge or in the surrounding area.

C. Big Game Animals.

The white-tailed deer population appears to have declined in this area. The refuge fall peak of 20 compares with 25 last year. At the close of the year there were only about five present.

There have been occasional reports of mule deer in the area, but none have ever been sighted on the refuge. No other big game animals are in this vicinity.

D. Fur Animals, Predators, Rodents, and Other Mammals.

1. Fur Animals.

One muskrat house was observed this fall in Northwest Slough. Two "rats" were observed near the house. Two were also observed in South Marsh in October. The populations appear to be increasing slowly and the peak of 15 compares with 10 last year.

Mink and long-tailed weasel numbers remain low with an estimate of eight for each species.

2. Predators.

Raccoon seem to be increasing in spite of predator control. The peak population is estimated at 30, while the skunk and fox estimate remains the same at 20 and 12 respectively. During the year 18 raccoon, 8 skunks and 4 fox were destroyed by refuge personnel. (See Table Number 8.)

TABLE NUMBER 8

Predator Control

	1965	1966	1967
Raccoon	7	14	18
Skunk	7	3	8
Fox	3	0	4

Two badgers were observed during the year and the population is estimated at five. Badgers are not destroyed because of their control work on pocket gophers.

3. Rodents and Other Mammals.

Jack rabbit and cottontail rabbit numbers are about the same as last year with peaks estimated at 30 and 10 respectively. Cottontails have not recovered from the March, 1966 blizzard.

Thirteen-lined ground squirrels are very numerous, Franklin's are common (especially at the Recreation Area), and Richardson's are scarce. Pocket gophers are also common. There is no noticeable population change regarding any of these.

E. Hawks, Eagles, Owls, Crows, Ravens, and Magpies.

Hawks did not seem to be as numerous as last year. The first hawk (marsh) was observed on March 11. This was the most common hawk during the year.

At least one horned owl was present all year. Only one short-eared owl was observed compared to three in 1966.

No bald eagles were observed, while one golden was seen in March and another in September.

Crows were much more numerous, with 500 feeding in the corn in A-4 on March 30. There were 400 here for a short time in October. No crows nested on the refuge.

No ravens or magpies were observed. The last magpie was seen on December 27, 1965.

F. Other Birds.

The redpolls that were so common last year were not observed this year. The slack was taken up by 30 cedar waxwings on January 4, and 18 Bohemian waxwings on January 31.

The first meadowlark was observed on March 21, the same day a large flock of tree sparrows was recorded. The next day many slate-colored juncos were seen.

A yellow-shafted flicker was observed on April 11 and a red-shafted on April 13. The red-shafted is a rare visitor in this area. Table Number 9 shows dates small birds were first observed.

TABLE NUMBER 9

Common Name	Date First Observed	Number	Location
Cedar waxwing	1/4	30	Headquarters
Bohemian waxwing	1/31	18	"
Meadowlark	3/21	1	"
Tree sparrow	3/21	Many	"
Starling	3/22	6	"
Slate-colored junco	3/22	Many	"
Red-winged blackbird	3/27	3	"
Kingfisher	3/30	1	NW Slough
Common grackle	4/7	1	Headquarters
Yellow-shafted flicker	4/11	1	"
Red-shafted flicker	4/13	1	"
Song sparrow	4/17	1	"
Yellow-headed blackbird	4/26	Several	NW Slough
Harris' sparrow	4/28	Several	Headquarters
White-throated sparrow	4/28	3	"
Brown thrasher	5/5	1	Rec. Area
Myrtle warbler	5/5	2	Headquarters
White-crowned sparrow	5/5	2	"
Chipping sparrow	5/10	1	"
Towhee	5/15	1	"
Western kingbird	5/15	1	"
Barn swallow	5/18	1	"
Baltimore oriole	5/18	1	"
American goldfinch	5/24	14	"
Eastern kingbird	5/24	3	"
Cuckoo (species?)	6/10	1	"
Night hawk	6/11	1	"
Cedar waxwings	6/24	2	"

G. Fish.

There still are plenty of fathead minnows and sticklebacks, but no other fish are present except in Lake Isabel which borders the refuge. This lake contains northern pike and perch.

H. Reptiles.

Garter snakes, painted turtles, and tiger salamanders are common. Two hog-nosed and one smooth green snake were observed during the year.

I. Disease.

None noted.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development.

Fill material was hauled and placed in damaged areas in Dikes 2 and 3.

New shingles were placed on the storage shed roof.

Pulled out a small culvert and raised the dike just south of Harker Bay.

Repaired the main water line break on the north side of the Service Building.

B. Plantings.

1. Aquatic and Marsh Plants.

None.

2. Trees and Shrubs.

One thousand eastern red cedar were used to fill in gaps in existing shelterbelts. The severe drought took a heavy toll of these and last years plantings.

3. Upland Herbaceous Plants.

None.

4. Cultivated Crops.

The drought reduced grain yields to less than half of 1966. Estimated yields per acre are: wheat - 5, oats - 15, barley - 7, and corn - 5.

C. Collections and Receipts.

None.

D. Control of Vegetation.

No new patches of leafy spurge were found this year. However, two very small patches were sprayed that were not sprayed last year. It had appeared they were wiped out from previous spraying with 2-4,D and trysben, but they are trying to make a comeback. The tordon should stop them. Map Number 2 shows the location of spurge patches sprayed this year.

The patches vary in size from about 20 square feet to 1/3 of an acre. The largest patch is located on and adjacent to the Recreation Area. The terrain is rough and can only be reached with a hand sprayer. This patch will be difficult to control.

There is a fairly large patch of poison ivy located at the Recreation Area which is a Safety hazard to the public and refuge personnel. The ivy is being sprayed with Trysben 200, but control will be difficult because of terrain and desirable plants.

E. Planned Burning.

None.

F. Fires.

A fire was expected as a result of emergency haying and extremely dry conditions, but somehow none occurred. The firebreaks were kept black, and the tank and pumper were mounted on the 4-wheel drive pickup during the worst periods.

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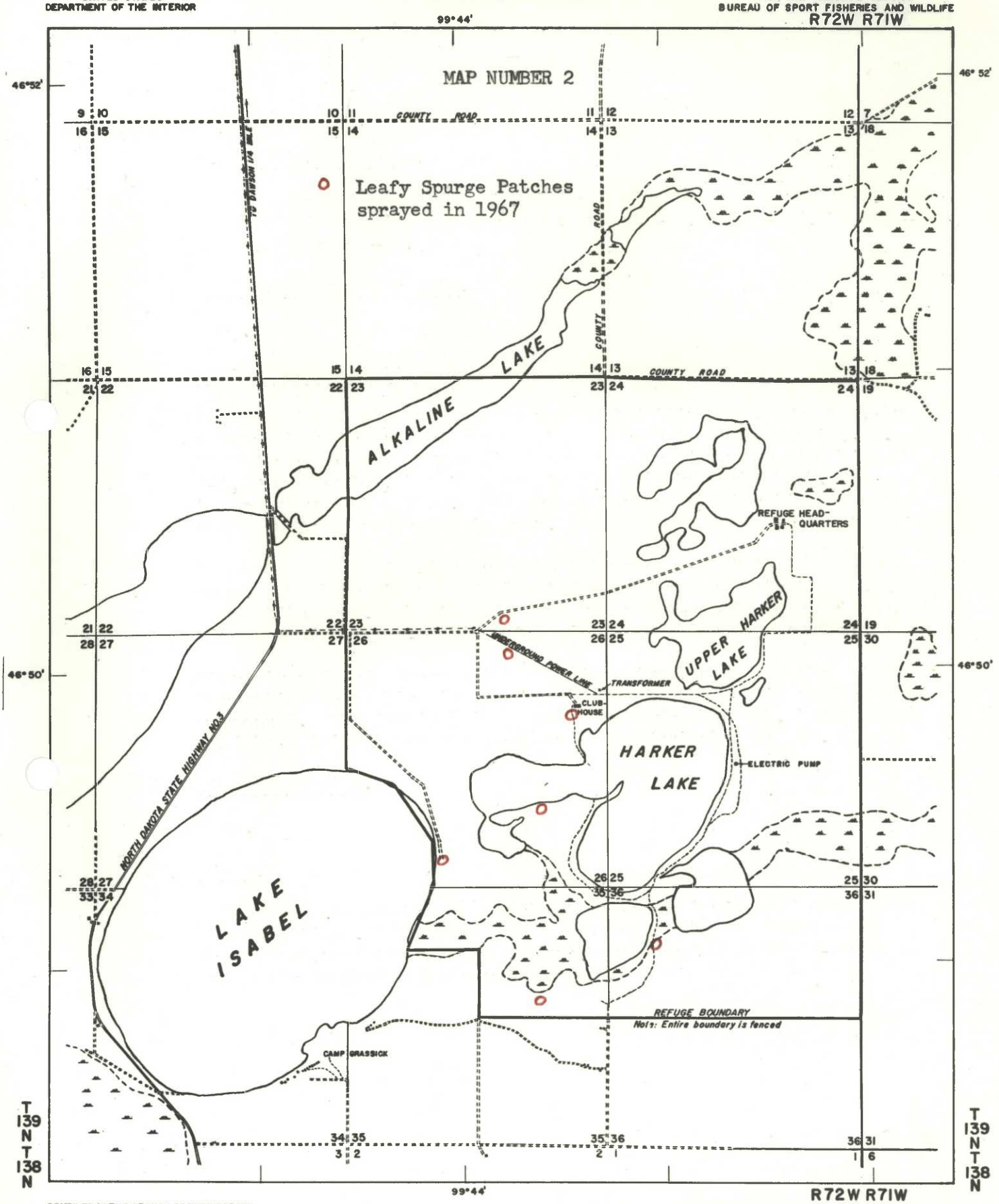

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MINNEAPOLIS, MINNESOTA MARCH, 1960

FIFTH PRINCIPAL MERIDIAN

Scale 20 0 20 40 60 CHAINS
1/4 0 1/4 1/2 3/4 MILES

TOWNSHIP DIAGRAM

MEAN DECLINATION 1960

3R N.D. 394 408

IV. RESOURCE MANAGEMENT

A. Grazing.

Three grazing permits were issued compared to seven in 1966. The idle grazing units will be grazed on an intermittent basis to improve the cover and to keep the grazing in control of the refuge.

The first cattle entered the refuge on May 16 and the last came out October 7. A total of 335.53 AUM's were utilized at $ 2.07 per AUM.

Because of the drought, permittees removed their cattle about two weeks early.

B. Haying.

No regular haying is permitted, however because of the drought, emergency hay permits were issued to 12 refuge neighbors. They were asked to hold the tonnage down to about 25 tons. They cut a total of 449.36 tons at $ 1.50 per ton. No haying was allowed before August 1. Since most of the hay was bromegrass, it was in poor condition. Especially after the severe drought. The permittees were happy to get any kind of hay.

C. Fur Harvest.

No trapping has been permitted since 1963. Refuge personnel are able to do a better job of predator control work than the former trapper, and there are not enough fur animals to cause a problem.

D. Timber Removal.

None.

E. Commercial Fishing.

None.

F. Other Uses.

None.

V. FIELD INVESTIGATION OR APPLIED RESEARCH

A. Nesting Platform Study.

A total of 34 nesting platforms were available compared to 37 in 1966. Table Number 10 shows platform use.

TABLE NUMBER 10

Nesting Platform Use

1967

Type Platform	Date Checked	Platform Number	Number of Eggs	Status of Eggs
Washing machine tub	6/14	8004	8	incub.
½ 30 gallon barrel	6/14	8022	8 (est.)	hatched
Washing machine tub	6/14	8024	8 (est.)	hatched
Washing machine tub	6/14	8025	4	clutch incomplete
Large metal 4-poster	6/14	8027	8 (est.)	hatched
½ tractor gas tank	6/14	8028	4	deserted
½ tractor gas tank	6/14	8033	9 (est.)	hatched

All platforms were checked again on June 28 and no new nests were found. The clutch in platform number 8025 was complete with nine eggs, which all hatched. So of seven nesting attempts, six hatched and one deserted. Table Number 11 compares use for the last four years.

TABLE NUMBER 11

Nesting Platform Use

1964 - 1967

Year	Platforms Erected	Platforms Useable	Number of Nests *	Nests Hatched	Nests Deserted
1964	4	4	0	0	0
1965	8	8	3	2	1
1966	34	37	4	4	0
1967	0	34	7	6	1

*All nests have been made by mallards.

No new platforms were erected in 1967 because of nesting platform studies being conducted by the research center. The platforms that are no longer useable have been destroyed by ice.

It is interesting to note that the large metal 4-poster (8027) in Headquarters Lakes was used for the third consecutive year.

B. Pothole Blasting.

Only one pothole was blasted this year; that to demonstrate the technique to the Kidder County 4-H Campers. The hole was about $4\frac{1}{2}$ feet deep and 36 feet long by 29 feet wide.

The same technique was used as recorded in the 1966 NR. The pothole is located just northeast of ANFO pothole number 16 as recorded on the map in the same NR.

C. Duck Banding.

Duck trapping was continued this year in an effort to band 200 teal prior to the experimental teal season. Results were much below last year when 393 blue-wings were banded.

Trapping was conducted from August 16 through September 1. A total of 139 ducks were banded at a cost of $ 104.50, or $ .75 per bird. Labor (26 hours) accounted for $ 84.20 and grain $ 20.30. There were no material costs as the 1966 trap was used. All banding was done by Biological Aid Eyre and Manager Mansfield.

TABLE NUMBER 12

Slade Refuge Banding

1967

Mallard

IM	IF	AM	AF	Total
29	29	6	5	69

Blue-winged teal

IM	IF	AM	AF	Total
32	21	3	2	58

Green-winged teal

IM	IF	AM	AF	Total
2	2	5	1	10

Pintail

IM	IF	Total
1	1	2

139

Table Number 13 lists the returns received during the year from ducks banded at Slade Refuge.

TABLE NUMBER 13

Band Returns

Species	Date Banded	Date Recovered	Where Recovered
Mallard	8/17/66	11/29/66	Millers Lake, La.
Mallard	8/17/66	10/29/66	18 Mi. N. Aberdeen, S.D.
BW teal	8/17/66	11/15/66	Cosamaloapan VC, Mexico
BW teal	8/17/66	12/2/66	2 Mi. N. Bastrop, La.
BW teal	8/18/66	12/25/66	Ft. Pierce, Fla.
BW teal	8/18/66	10/8/66	Near Nicollet, Minn.
BW teal	8/18/66	10/8/66	3 Mi. NW Audubon, Minn.
BW teal	8/20/66	9/?/66	2 Mi. SW Geneseo, N. D.
BW teal	8/22/66	9/?/66	Unknown place in Iowa
BW teal	8/23/66	8/7/67	Near Wadena, Sask.
BW teal	8/23/66	1/4/67	Near Puerto D Iztapa, Guat.
BW teal	8/30/66	11/20/66	Puerto Ceiba Tab, Mexico
BW teal	8/30/66	12/29/66	9 Mi. W Sabine Pass, Tex.
BW teal	8/31/66	9/3/66	35 Mi. NW Burwell, Nebr.
BW teal	9/1/66	9/10/66	Merritt Dam, Nebr.

Except for the blue-wing taken in Florida, the birds generally migrated in a north-south direction. He must have been side-tracked by the Florida Citrus Commission.

VI. PUBLIC RELATIONS

A. Recreational Use.

The Lake Isabel Recreation Area was open from May 15 through September 15 for picnicing, swimming, and boat launching.

The area was designated a U.S. Fee Area and for the first time an entrance charge was made. A big drop in visitor use took place because the area is used mostly by Kidder County residents and people from Bismarck. Visits dropped from 17,411 in 1966 to 5,241. Twelve hour use days took a corresponding drop from 6,205 to 2,204.

In spite of the large drop in use the operation was a financial success. This was probably a big factor in the decision to charge again in 1968. Total receipts were $ 1,395.50 derived from the

sale of 59 Golden Eagle passports, 981 $ 1.00 daily auto permits, and 3 $ .50 individual daily permits. Total expenses amounted to $838.08, with about $225.00 of this charged to initial costs and not expected to recur in 1968.

The fee did not result in a lot of complaints, but it is obvious that the complainers would be a lot happier if the money was being put back into the area.

The 4-H Camp was used from June 21 to July 15 by the following campers:

Dates	County	Number
June 21 - 24	Burleigh	75
June 25 - 28	Burleigh	76
June 28 - July 1	Emmons	85
July 5 - 8	Kidder	55
July 9 - 12	Logan-McIntosh	60
July 13 - 15	Morton	65
	Total	416

In addition, there were 22 in attendance at an older youth camp from June 18 - 21. These youths came from several counties.

All the campers (except Emmons County and the older youths) were taken on a one hour tour of the refuge. This program seemed to go over real well.

B. Refuge Visitors.

Date	Name	Organization or Address	Purpose
1/7	Clarence Himmerich	Rancher - Dawson	Grazing
1/12	Ray Badke	MM - Lower Souris	Pick up truck
1/12	Don Goodman	MM - Lower Souris	Pick up truck
1/13	Burdette Morrison	Farmer - Robinson	Grazing
1/13	Haaken Leland	Farmer - Robinson	Grazing
1/17	Gordon Markel	FCIC Dist.Dir. Bismarck	FCIC info.
1/31	Roy Wagner	ND G&F - Bismarck	Trapping grouse
2/20	Alvin Patzner	Farmer - Lake Williams	Grazing
3/20	William Fried	Farmer - Driscoll	Grazing

B. Refuge Visitors (Cont'd.)

Date	Name	Organization or Address	Purpose
3/21	Harold Duebbert	Biologist, NPWRC	WPA research
3/21	Tom Klett	Biologist, NPWRC	WPA research
3/28	Marlin Syverson	SCS - Steele	Potholes
3/28	Refuge Permittees	Local	Signup
3/29	Refuge Permittees	Local	Signup
4/1	Wm. McClure	GMA - Bismarck	Waterfowl use
4/1	Harold Spitzer	ND Chief Warden - Bismarck	Waterfowl use
4/11	Lee Adams	Farmer - Steele	Grazing
4/12	James Hammel	Woodmansee's - Bismarck	Demonstrate copying machine
4/21	Mike Beaudry	R.O. - Minneapolis	Inspect Recreation Area
4/25	Norman Miller	Farmer - Gackle	Grazing
5/3	Charles Sloan	USGS - Denver	Inspect well
5/3	Wm. Eisenlohr	USGS - Denver	Inspect well
5/3	James Ficken	USGS - Lincoln, Nebr.	Inspect well
5/3	Marlin Syverson	SCS - Steele	Courtesy call
5/10	Marlin Syverson	SCS - Steele	Courtesy call
5/10	Dick Maluski	SCS - Steele	Courtesy call
5/15	Charles Sloan	USGS - Denver	Inspect well
5/17	Phil Park	Extension Agent - Steele	4-H Camp
5/18	Phil Park	Extension Agent - Steele	4-H Camp
5/18	Marlin Syverson	SCS - Steele	Courtesy call
5/19	Allen Dahn	Farmer - Steele	Grazing
6/9	Cliff Nitschke	BEK Telephone - Steele	4-H Camp Phone
6/14	Delno Holland	USGS - Bismarck	Inspect well
6/15	Mr. & Mrs. Cliff Wright	Mobil Dealer - Dawson	Complaint
6/15	G. Harter	Farmer - Dawson	Property
6/16	R. Kleppe	Farmer - Dawson	Grazing
6/19	Robert Wells	Banker, Robinson	Visit
6/19	Robert Black	BOR - Denver	Inspect Fee Area
6/20	Allen Dahn	Farmer - Steele	Grazing
6/20	John DeKrey	Farmer - Tappen	Pick up posts
6/23	Charles Sloan	USGS - Denver	MSL elevations
6/23	Del Holland	USGS - Denver	MSL elevations
6/26, 27,28	Carl Stephan	Eng. R.O. - Minneapolis	Easement Survey
6/28	Marlin Syverson	SCS - Steele	Dugouts
6/28	Dick Maluski	SCS - Steele	Dugouts
6/29	Charles Sloan	USGS - Denver	Inspect well
6/30	Forrest Lee	NPWRC Biologist - Jamestown	Nesting Platforms

B. Refuge Visitors (Cont'd.)

Date	Name	Organization or Address	Purpose
7/6	M. C. Hammond	Area Biologist - Lower Souris	Censuses
7/12	Wm. Sweeney	MRBS - Billings, Mont.	Courtesy Call
7/12	Don Simpson	MRBS - Bismarck	Courtesy Call
7/15	Ralph Polasky	Farmer - Tappen	Hay
7/16	Peter DeWald	Farmer - Dawson	Hay
7/17	Leonard Kleiter	Farmer - Tappen	Hay
7/18	Stanley Radniecki	Contractor - Oklee, Minn.	Dugout
7/18	Harold Benson	R.O. - Minneapolis	Wetlands
7/21	William Erling	Warden - ND G&F - Linton	Littering case
7/21	Richard Schmidt	Farmer - Napoleon	Hay
7/21	Wenes Mardikian	Farmer - Steele	Hay
7/26	John Winship	Reg. Pilot - Minneapolis	Aerial Photos
7/27	John Berreth	Farmer - Dawson	Hay
8/3	Wm. McClure	GMA - Bismarck	Banding
8/3	Lyman Reynoldson	GMA - Minot	Banding
8/14	William Fried	Farmer - Driscoll	Hay
8/14	Herb Troester	Ref. Mgr. - Tewaukon	Visit
8/16	John Schneider	Farmer - Forbes	Hay
8/17	Mr. & Mrs. C. Peterson	Livingston, Montana	Visit
8/17	Mr. & Mrs. D. Olson	Moffit, N. D.	Visit
8/28	Allen Dahn	Farmer - Steele	Deliver seed
8/28	Wenes Mardikian	Farmer - Driscoll	Hay
8/28	Alex Mardikian	Farmer - Driscoll	Hay
9/1	Mrs. Lennon	California	Observe birds
9/7	Wm. McClure	GMA - Bismarck	Violations
9/13	Ed Shuda	Realty - R.O. - Mpls.	Wetlands
9/21	Wm. McClure	GMA - Bismarck	Hunting regs.
9/21	Ben Melland	Warden - ND G&F - Jamestown	Hunting regs.
9/21	Gerald Pospichal	Biologist - NPWRC - Jamestown	Hunting regs.
9/26	Phil Park	Extension Agent - Steele	Visit
9/26	Roger Martin	Extension Agent - Napoleon	Visit
9/27	James Williams	Boater - Bismarck	Remove boat
10/5	William Fried	Farmer - Driscoll	Grazing
10/18	Bill Corwin	Auto Dealer - Fargo	Visit

B. Refuge Visitors (Cont'd.)

Date	Name	Organization or Address	Purpose
10/25	Charles Sloan	USGS - Denver	Inspect well and remove instruments
10/26	Mr. & Mrs. Willard Canfield	Ft. Frances, Ont.	Visit
10/26	Mr. & Mrs. D. Olson	Moffit, N. D.	Visit
11/3	Clair T. Rollings	R. O. - Minneapolis	Inspection
11/8	Wm. Daugherty	FWS - Bismarck	Visit
11/8	Jon Nelson	FWS - Bismarck	Visit
11/17	George Barrett	Salesman - Bismarck	Floor Surfacing
12/5	John Basaraba	Farmer - Wilton	Trapping
12/27	Mr. & Mrs. Forrest Lee & Family	NPWRC - Jamestown	Courtesy Call
12/27	Glen White	Farmer - Robinson	Grazing
Periodic	Louis Ciucci	Wetlands - Jamestown	WPA's
Periodic	Barry Johnson	Wetlands - Jamestown	WPA's
Periodic	Ken Ystesund	Wetlands - Jamestown	WPA's

C. Refuge Participation.

1/27 Mansfield attended sessions of the N. D. Chapter of the Wildlife Society at Bismarck.

2/21 Mansfield, Hansen and Olson attended law enforcement meeting at NPWRC, Jamestown.

3/20 Mansfield presented a slide-talk at the Dawson School to an attendance of 75.

4/15 Mansfield attended the organizational meeting of the N. D. Natural Science Society at Jamestown.

4/17 Mansfield attended the AAO meeting at Jamestown.

5/8 Mansfield attended a workshop on wildlife extension service at NPWRC, Jamestown.

6/22 Mansfield conducted a tour of Slade Refuge for 75 Burleigh County 4-H campers.

6/26 Mansfield conducted a tour of Slade Refuge for 76 Burleigh County 4-H campers.

7/6 Mansfield conducted a tour of Slade Refuge for 55 Kidder County 4-H campers.

7/11 Mansfield conducted a tour of Slade Refuge for 60 Logan-McIntosh County 4-H campers.

7/13 Mansfield conducted a tour of Slade Refuge for 65 Morton County 4-H campers.

8/11, 12 Mansfield attended meeting of N. D. Chapter of Wildlife Society at Medora, N. D.

9/18 Mansfield and Hansen attended the AAO meeting at Jamestown.

10/18 Mansfield conducted a tour of Slade Refuge for six cub scouts and their leader from Steele, N. D.

11/20 Mansfield attended the AAO meeting at Jamestown.

11/20 Mansfield presented a slide-talk to 49 members of the Hazelton-Moffit PTA at Hazelton, N. D. in the evening.

D. Hunting.

As in the past, the only hunting allowed on the refuge was for deer. The season opened at noon November 10 and closed at sunset November 19.

Deer were not hauled out for hunters this year and this change apparently reduced hunter use. It is estimated only 20 hunters used the refuge during the entire season.

There were about 20 deer on the refuge when the season opened, but only two were known to be taken. They were a yearling buck and a female fawn. This compares with a kill of six last year and eight in 1965.

An experimental teal season was held in this area for the third consecutive year. The season opened at sunrise September 2 and closed at sunset September 10. Teal numbers seemed to be much below a year ago. The drought had dried up many of the good teal spots. Hunting pressure was light and it is believed the kill was down.

The sharp-tailed grouse and gray partridge season was open from September 16 through December 17 with a bag and possession limit of four and eight. The population ranged from fair to good, but hunting pressure was light.

The pheasant season was open from October 21 through October 29. There were very few pheasants in this area and hunting pressure was extremely light.

Goose hunting pressure was moderate but definitely increased over 1966. The season extended from September 30 to December 12. The bag limit was reduced to one on Canada's and increased to two on white-fronts. Goose numbers in Kidder County appeared to be down slightly from last year.

Duck hunting pressure also appeared to be up slightly, but could only be classed as moderate. The season opened October 7 and closed November 25. Shooting hours were from one-half hour before sunrise until sunset.

It is believed the duck kill was down moderately. The mallards and scaup were not here in usual numbers. Here again, many good duck marshes were dry or nearly dry.

E. Violations.

While checking teal hunters in a marsh southwest of Dawson, the writer observed Mr. Larry Lang of Dawson shoot a hen mallard. He was sure it was a teal (he saw the blue in the wing), but it still cost him $25.00 in the local court in Steele.

On July 2 the writer was on refuge patrol when a beer can came flying out of a car immediately in front of him. The driver was Mr. Robert Feist of Bismarck, and he also paid a $25.00 fine in Steele.

F. Safety.

Safety meetings were held in nearly all months of the year. The following topics were presented and discussed:

Dangers From Frost on Roof
Cargon Monoxide Poisoning
Frostbite Remedies
Effect of Patent and Prescribed Medicines on Driving
Electric Shock Danger When Working Around Sump Pumps
Air Pollutants Spur Interest in Controls
Federal Auto Standards Adopted

Hazards of Organic Phosphorous Pesticides
Ladder, Lifting, Fencing and Fire Safety
The 1967 National Drivers Test
Boating Dangers
Power Lawn Mower Precautions
Storage of Combustibles
Fehicle and Fire Fighting Safety
The Long Lake Safety Management Program
Dangers from Mis-use of Gasoline, Carbon Tetrachloride and Charcoal
Brake Failure and the Road to Safety
Water Safety Rules
Fire in the Wastebasket
What You Should Know About Quicksand
Filling Gas Tanks in Hot Weather
Lightning Storm Shelters
Heart Trouble
Bureau Boating Safety
Individual Safety Responsibilities
Definition of an Accident
Station Fire Plans for Long Lake and Slade

Safety accomplishments during the year include:

Lowered sump pump in well house to reduce water and ice hazard.
Installed "caution electricity" sign on Long Lake septic tank.
Installed a storage box on Long Lake pickup truck.
Cleaned up the Long Lake paint house and oil shed.
Cleaned and straightened up supplies stored in the Long Lake duck hospital.
Checked all fire extinguishers at both refuges.
Tested and labelled capacity of boats and canoe at Long Lake and Slade.
Installed new type buoys with signs to keep boaters away from beach.
Maintained about eight miles of fire breaks.

The Safety record now stands at 9,725 days without a "Lost-Time" accident.

VII. OTHER ITEMS

A. Items of Interest.

For the first time in several years we got through the year without any changes in personnel. This certainly makes things run more smoothly and is a benefit to the entire program.

Assistant Manager Karl Hansen completed his first year in August, and on August 27 he was promoted to a GS-7. His title was changed from Wildlife Biologist (General) to Refuge Manager. Karl is really getting the feel of things now. He is responsible for the wetland areas in Burleigh, Emmons, and Logan Counties, and for a lot of the work at Long Lake Refuge.

Just before Christmas Clerk Olson was notified that effective December 31 he was being promoted to a GS-6. His title remains Clerk (Typing). No one ever deserved a promotion more than Gerald. He is the kind of man you can depend on to get the job done. A real asset to our program.

Congratulations are due both these men as they have done a lot to improve our program.

B. Credits.

Clerk Olson worked up the data in the Weather Table, Refuge Visitors, Refuge Participation, and typed and assembled the entire report. Karl Hansen wrote the section on Florence Lake Refuge. The manager prepared the rest of the report.

C. Photographs.

The 3" X 5" photos were taken with the Slade Refuge Kodak Signet (35 mm) camera, while the 3" X 3" photos were taken with the Long Lake Yashica 44 (127 film) camera.

NARRATIVE REPORT

FLORENCE LAKE NATIONAL WILDLIFE REFUGE

I. GENERAL

The north opening of the culvert at the south end of Florence Lake is used for measuring water levels. The measurements (usually taken during each inspection trip) give some indication of general water conditions.

At freeze-up in November 1966, the water level measured 5" below the culvert opening. On inspection of the refuge March 22, the ground was covered with 3 or 4 inches of wet snow. Trails on the refuge had deep snow from drifting and all water areas were frozen over.

Water was 3" deep and running through the culvert April 7. This represented an 8" rise of the water level in the lake. All potholes and marshes were nearly full.

By the end of May until the middle of June all potholes and marshes were in excellent shape. On June 26, the water levels of the lake were even with the bottom of the culvert. By July 13, the water level was $2\frac{1}{2}$ inches below the culvert, smaller type I potholes were dry, and some type III potholes were holding only a few inches. The larger, deeper marshes continued to hold up quite well.

On October 11, the level in the lake had dropped to approximately 10 inches below the culvert. This represented a decline of 13 inches from April 7. This same loss of 13 inches occurred in 1966.

Food and cover conditions were in good shape in early June. However, the drouth caused a deterioration of grasses, crops and aquatic plant foods. A late but welcomed sight, was the moisture returning in September and October. These rains helped put some moisture in the ground at freeze-up in early November.

II. WILDLIFE

A. Waterfowl.

Ducks did not begin to show up in the vicinity of the refuge until the last week in March. Duck use started out slow and increased considerably by the time the breeding pair count was made. Ducks continued to make good use of the refuge in the fall. A good

population of divers was present on October 11 when 500 were recorded. The bulk of these divers were made up of redheads and ringnecks.

Little, if any, goose or swan use occurred on the refuge during the year. No observations were made on these birds.

The following table shows the waterfowl counts that were made during the year:

TABLE NUMBER 1

Waterfowl Counts

	4/7	6/6-7	7/13	10/11
Mallard	2	45	40	100
Gadwall		50	15	
Widgeon		5	2	6
Pintail		20	10	
GW teal		3	5	25
BW teal		230	15	5
Shoveler		20	2	
Total Dabblers	2	373	89	136
Redhead		15	6	325
Ringneck		2	10	95
Canvasback		8	1	30
Lesser Scaup	2	10	2	35
Ruddy		15	15	10
Bufflehead				5
Total Divers	2	50	34	500
Total ducks	4	423	123	636
Coots		100	30	90

An extensive breeding pair count was conducted on June 6 - 7 by Refuge Manager Mansfield and Asst. Hansen. The pair count was made in the same manner, using the pothole numbering system that was set up in 1966. Only one exception, no marsh vehicle

(catagator) was used this year. All numbered water areas were walked out (see map on following page). Table number two compares the counts made.

TABLE NUMBER 2

Breeding Pair Count Comparisons

	1966		1967	
	Pairs*	% Species Comp.	Pairs*	% Species Comp.
Malla rd	18	6.7	30	11.7
Gadwall	31	11.6	25	9.4
GW teal	2	.8	2	.7
BW teal	147	55.0	149	56.4
Shoveler	16	5.9	13	4.9
Pintail	19	7.1	17	6.4
Redhead	9	3.4	9	3.4
Canvasback	5	1.9	4	1.5
Lesser scaup	5	1.9	5	1.9
Ruddy	15	5.7	10	3.7
Total Pairs	265	100.0	264	100.0
Coot Pairs	71		42	

*Pairs and lone males tabulated for pair count totals.

This year two brood counts were made by Asst. Manager Hansen. The two count procedure will be continued in future years.

By the time the counts were made (July 13, August 17), many of the smaller water areas were dry. Only Florence Lake and the deeper marshes held any substantial amount of water. The counts were conducted using the numbering system for the breeding pair count. Only samples 18, 18.1 and 39 are areas that had their entire shorelines walked out (see map). All other samples were covered by vehicle using observation points. Sample 39 (60 acres) located at the west end of the refuge, held the most broods (12 - August 17).

Apparently a late hatch occurred due to the May blizzard. On the first brood count, only 11 broods were observed while on the second count, there were 25.

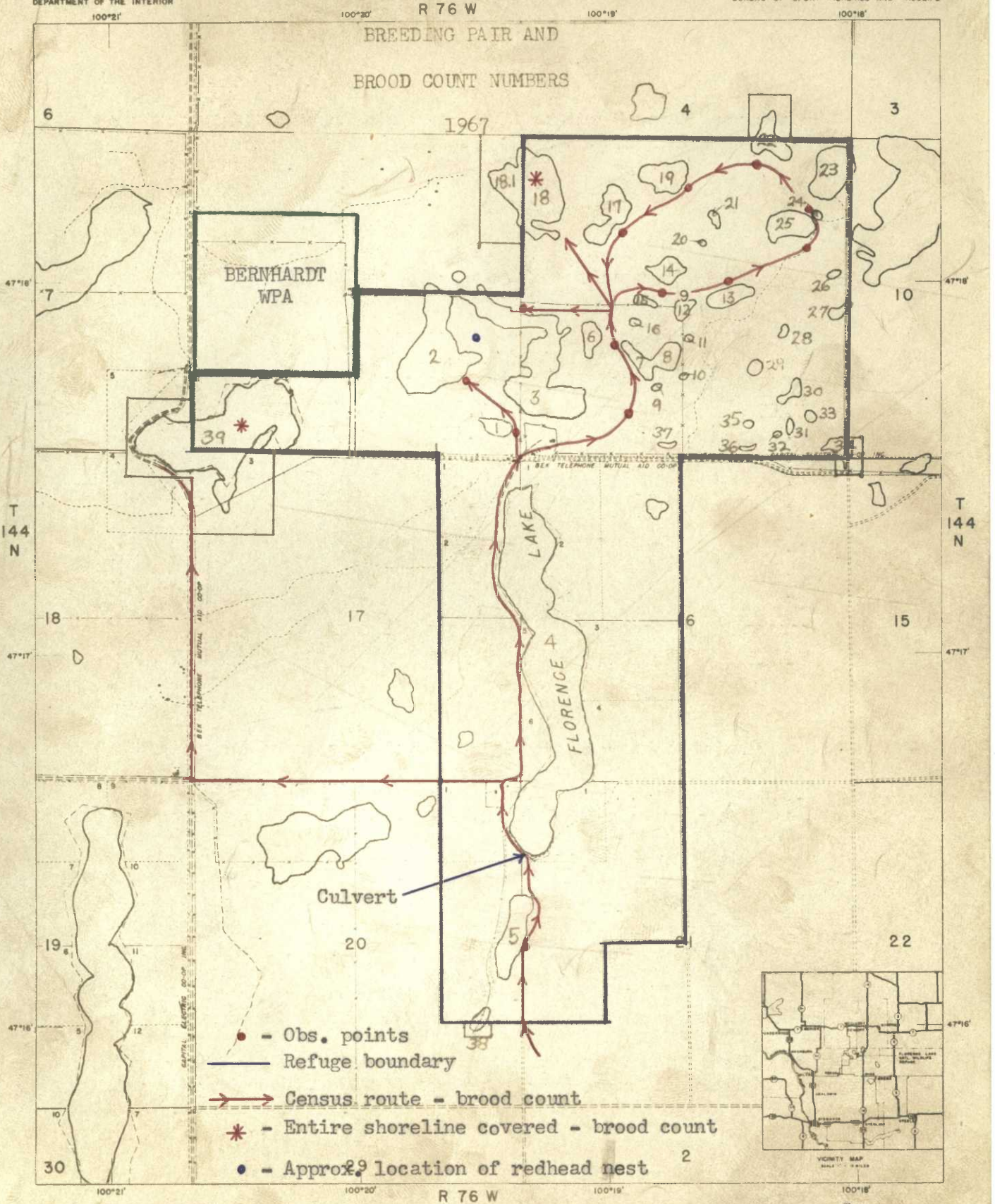
PURCHASE BOUNDARY

FLORENCE LAKE NATIONAL WILDLIFE REFUGE

BURLEIGH COUNTY, NORTH DAKOTA

UNITED STATES
DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE



COMPILED IN THE BRANCH OF REALTY
FROM AERIAL PHOTOGRAPHS AND OFFICIAL
PLATS OF B.L.M.

WASHINGTON, D.C. MAY, 1967

R 76 W

FIFTH PRINCIPAL MERIDIAN

SCALE 0 10 20 40 60 80 CHAINS
0 1/4 1/2 MILE

TOWNSHIP DIAGRAM

MEAN DECLINATION 1969

During the July 13 count, a redhead nest with 10 eggs was located near a buckbrush patch approximately 50 yards from the nearest water (see map).

Table number 3 compares the broods counted for the dates previously mentioned. As was expected, from the breeding pair count, blue-winged teal produced the most broods.

TABLE NUMBER 3

Brood Count Data

	7/13	8/17
	No. Broods Observed	No. Broods Observed
Mallard	2	2
Gadwall	3	2
BW teal	6	13
Shoveler	0	1
Pintail	0	1
Total Dabblers	11	19
Corr. Dabblers*	18	33
Redhead	0	1
Canvasback	0	2
Ruddy	0	3
Total Divers	0	6
Corr. Divers*	0	9
Total Broods	11	25
Corr. Broods*	18	42
Coot young	2	31

* Computed from Waterfowl Production Surveys Manual.

Based on the pair count total, duck production is estimated at 475. This is a decline of 180 young from 1966 when production was estimated at 655.

Although the number of pairs was nearly the same for 1966 and 1967, the productivity level was reduced. M. C. Hammond (Area Biologist) reported to North Dakota managers that a 30% productivity level for all species should be used (45% is normal) in computing production. Thus, the production figure is arrived at by multiplying 264 pairs by .30, and then by 6 (average brood size).

Coots experienced some hardship from the late April blizzard and some die-off occurred. Only 42 pairs were recorded this year, opposed to 71 for 1966. Production for the species is estimated at 100.

B. Upland Game Birds.

No upland game birds were observed, however sharp-tailed grouse and gray partridge are known to frequent the refuge. No pheasants have been seen since the March, 1966 blizzard, and it is doubtful any are present. An estimate of 40 sharp-tailed grouse and 20 gray partridge would be realistic.

C. Other Birds.

Black-crowned night herons, great blue herons and American bitterns were observed. Pied-billed grebes were common, with 6 broods observed July 13. Other grebes noted were eared and Western. Common and black terns were fairly common throughout the summer. A nesting colony on potholes 18 - 18.1 (see map) had approximately 100 - 150 birds. Sora rails were observed when conducting the breeding pair count.

A variety of shorebirds use the refuge, especially during migration. The more commonly observed species include killdeer, lesser yellowlegs, Wilson's phalarope, and long-billed dowitchers. Occasionally, avocets, marbled godwits, willets, and upland plover are seen.

The most common prey species seen were the marsh hawk and great horned owl. The old farmstead is a favorite haunt of at least one great-horned owl.

Common passerines include meadowlarks, lark bunting, bobolink, goldfinch, redwing and yellowheaded blackbirds, and a variety of sparrows.

D. Big Game Animals.

The white-tailed deer population peak is estimated at 35, the same as a year ago. On March 22, 13 deer were observed along the southwest side of the refuge. Ten were jumped from the old farmstead April 7, while two does and three young were seen July 13. On October 11, four bucks and one doe were observed.

E. Predators.

The predator population remained about the same as a year ago. Peak populations for red fox, skunk and raccoon are estimated at 4, 10 and 10 respectively.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development.

The trail at the south end of Florence Lake was nearly washed out by high water and strong northerly winds. Laborers Moffit and Feist from the Long Lake Refuge moved equipment to the area and repaired the damage. Eleven dump truck loads of dirt were placed in the trail on August 8.

The main trails were mowed in October with the tractor and mower from the Long Lake Refuge.

Signs and fences were checked for needed replacement or repairs, but none were necessary.

B. Plantings.

A Cooperative Farming Agreement was issued to Dan Yecovenko to plant 22.4 acres of wheat, 8.6 acres of corn, 10 acres of flax, and 7.0 acres of wheat/sweet clover mix. No estimate of the yield was made, but drouth conditions reduced it considerably. The refuge share of the corn was left standing.

IV. RESOURCE MANAGEMENT

A. Grazing.

Grazing permits were issued to Harris Crimmins (G-1) and Charles Giedd (G-2). The permit for G-1 extended from June 1 to

October 15 for a maximum of 225 AUM's. The permit for G-2 extended from May 16 to September 30 for a maximum of 130 AUM's. Mr. Crimmins utilized 222.07 AUM's for which he paid $459.68, while Mr. Giedd utilized 68.98 AUM's and he paid $142.79.

Both units were in good condition at the end of the grazing season. No change in the AUM's is needed for 1968, due to their general condition.

B. Haying.

Because of the drought conditions one permit was issued for the removal of approximately 25 tons of emergency hay. The price was $1.50 per ton and the permittee removed 28.96 tons. No hay could be cut prior to August 1.

V. ITEMS OF INTEREST

On July 26 a 160 acre WPA was purchased adjacent to the north boundary. (See map.) This tract will be administered as a WPA, but managed as a part of the refuge. A small dam on the refuge will raise the water level in the WPA marsh, which will improve it for nesting ducks.

EASEMENT REFUGE DISTRICT #1

1 Appert Lake

Through early July the water level was higher than a year ago and water conditions were excellent. When first checked on March 27, the lake was full but no water was spilling. On June 27 the water level was 18" below the spillway. By September 25 the water was reduced to small pools behind the dam and in the west arm. Above normal precipitation in October held the water at about this same level at freeze-up.

Wildlife observations include the following:

	3/27	4/11	6/13	9/25	10/31
Mallard	50	10	10	450	
Gadwall	15		5	175	
Baldpate	10			15	
Pintail	75		5	250	
GW teal	20	15	8	10	2
BW teal			25	50	
Shoveler			10	60	3
Redhead	15	4	4		
Ringneck		26			
Ruddy			1		

The June 13 count also recorded 1 male wood duck. The area looks good for "woodies" and it is possible one nested there.

Two broods were observed on July 17. They consisted of nine gadwall (2a) and eight blue-winged teal (2a). Other wildlife recorded on that date include 8 killdeer, 2 pied-billed grebes, 2 Franklin's gulls and 1 crow.

2 Canfield Lake

Water levels were improved over 1966 and in spite of the drought the lake held good water at freeze-up.

Dense stands of hardstem bulrush made waterfowl observations difficult. The following wildlife were observed:

	4/7	6/26	10/11
Mallard	330	4	500
Gadwall	15	6	50
Baldpate	30	2	
Pintail	225		200
GW teal	40	1	
BW teal		7	
Shoveler	25		3
Redhead	80	6	
Canvasback			4
Ringneck	20		
Scaup	50	1	
Ruddy		9	
American Merganser	5		
Coot		20	400
Marsh hawk	3		1
Rough-legged hawk	1		
Crow	3		
Horned grebe		2	

Mr. Duane Bender of Regan was issued a trapping permit (not regular type) and he reported a catch of 2 male and 1 female mink in five days trapping.

3 Flickertail

The spillway continues to be badly eroded which prevents the dam from impounding more than about five acres of water. Water was spilling when checked in April and when last checked in June. The following wildlife were observed:

	4/10	6/13	6/27
Malla rd	8	2	15
Gadwall	18	6	2
Baldpate	45		
Pintail	12	3	5
GW teal	29	5	6
BW teal	2	3	4
Wilson's phalarope		10	
Willet		1	2
Godwit		2	1
American bittern			1

The pasture surrounding the water area is similar to a billiard table, but not quite as flat. It is loaded with Richardson's ground squirrels, who must feed mostly on gravel and cattle droppings.

4. Hutchinson

This refuge was only visited on June 26, and on that date the Sorenson boy (local 16 year old) stated there were about 500 Canada type geese there in the spring. He also said there were about 2,000 ducks and 150 - 200 whistling swans.

Wildlife observed on the 26th include the following:

Mallard	6	BW geal	16
Gadwall	22	Shoveler	12
Baldpate	12	Redhead	22
Pintail	22	Ring-billed gull	8
GW teal	10	Avocet	4

The water was good in June and it is estimated it was still fair at freeze-up.

5. Lake George

On June 26 there were about 55 ducks in the north unit and 180 in the south unit. Water was good in the south unit, but poor in the north unit because of the washed-out spillway. Lake George had good water but few ducks.

Avocets, willet and marbled godwit were constantly diving at us, indicating nesting activity. Their numbers were about 30, 20 and 15 respectively.

6. Lost Lake

Not visited this year. This area will be included in the Garrison Diversion program.

7. Springwater

No ducks were observed when the refuge was inspected on June 27. Water was flowing into the drop culvert about $\frac{1}{4}$" deep.

Sunburst

Sunburst Lake was full, but no water was spilling on April 10. This was a drop from March 3 when 2" was passing over the spillway. The 2" spilling was the peak for the year. Water dropped all summer until it was about a foot below the spillway at freeze-up.

Wildlife observations include the following:

	3/27	4/10	6/9	9/13
Mallard		20	16	275
Gadwall		12	2	110
Baldpate		30		55
Pintail		15	2	150
GW teal		25		13
BW teal			10	75
Shoveler		25		
Ringneck		18		
Canvasback		38		
Scaup		30		
American goldeneye		4		
American merganser	7	4		
Coot				75
Great blue heron				4
Pheasant	5		1	6

General Inspection

From June 26 - 28, Carl Stephan and the writer inspected dikes and spillways at Lake George, Appert Lake, Flickertail, Springwater, Sunburst and Hutchinson Lake Easement refuges. Appert Lake and Springwater are the only areas not requiring repairs to facilities.

SIGNATURE PAGE

Submitted by:

Marvin Mansfield
(Signature)

Marvin Mansfield
Refuge Manager

Title

Date: February 28, 1968

Approved, Regional Office:

Date: MAR 1 1968

(Signature)

Regional Refuge Supervisor

Refuge Manager Mansfield

Roll 68-1
Exp. 5 1/12/68 KH

Ass't. Manager Hansen

Roll 68-1
Exp. 1 1/11/68 GO

FEB • 68

FEB • 68

Refuge Clerk Olson

Roll 68-1
Exp. 2 1/11/68 KH

Laborer-Maintenance Schauer

Roll 68-1
Exp. 3 1/12/68 KH

FEB • 68

Trees at Slade Refuge Headquarters
after ice and snow storm (4/30-5/1)

Roll 67-1, Exp. 9 5/2/67 MM

Ice covered trees at Slade well
after 4/30-5/1 ice and snow storm

Roll 67-1, Exp. 11 5/2/67 MM

Harker Lake nearly 100% ice
covered after same late storm

Roll 67-1, Exp. 11 5/2/67 MM

Ducks on Headquarters Lake (East)

Roll 67-1, Exp. 1 4/18/67 MM

Laborer Hottman repairing Service Building roof. Slade Refuge.

Roll 67-1, Exp. 8 5/2/67 MM

Biological Aid Eyre, Maintenanceman Schauer, and Laborer Hottman shingling the oil shed roof.

Roll 67-5, Exp. 2 9/7/67 MM

Hottman and Schauer erecting
frame for new sign

Roll 67-2, Exp. 3 5/5/67 MM

U.S. Fee Area sign at entrance
to Recreation Area

Roll 67-3, Exp. 4 6/15/67 MM


THIS IS A U.S. FEE AREA
AUTHORIZED BY THE LAND AND WATER
CONSERVATION FUND ACT OF 1965
ENTER IF YOU POSSESS
A $7 GOLDEN EAGLE PASSPORT
OR
A $1 DAILY ENTRANCE PERMIT
OR
A $.50 DAILY WALK-IN PERMIT
YOU MAY BUY THEM AT
REFUGE HEADQUARTERS

Laborer Hottman spraying leafy spurge near Lake Isabel. All spurge patches are small and easily sprayed with a hand sprayer. Tordon has been used since 1966 to control spurge.

Roll 67-3, Exp. 2 6/15/67 MM

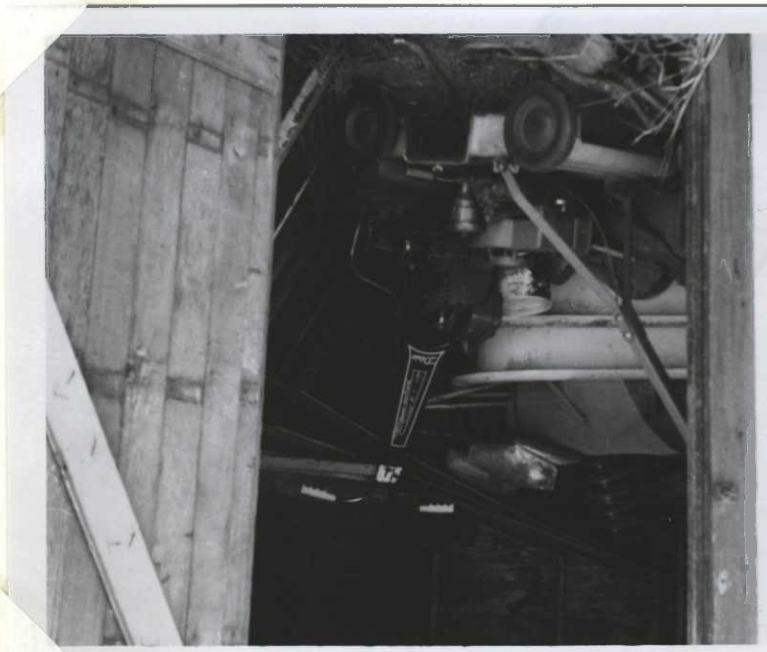
Several trees at the recreation area blew down during the 4/30-5/1 blizzard

Shed at 4-H Camp houses many
things, but this spring it
was home for . . . . . .

a mother raccoon and her five
babies. In a wash tub yet.

Roll 67-2, Exps. 4,5 5/5/67 MM


Gold Bond



Darin Mansfield with one
of the baby raccoons.

Roll 67-2, Exp. 6 5/5/67

MM

The old and the new. We finally replaced the "thing" ('62 Lark) with an automobile ('67 Ford).

Roll 67-5, Exp. 1 9/7/67 MM

Flickertail Easement Refuge, Emmons County

Roll 67-5, Exp. 3 3/27/67 KH

Sunburst dam and spillway.

Roll 67-3, Exps. 3,4

3/3/67 KH

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service Regional Information

BUREAU OF SPORT FISHERIES AND WILDLIFE

Slade National Wildlife Refuge
Dawson, North Dakota

SLADE REFUGE RECREATION AREA DESIGNATED FEE AREA

DAWSON -- Entrance fees will be charged at the Lake Isabel Recreation Area on Slade National Wildlife Refuge reports Refuge Manager Marvin Mansfield. The area is available for public use from May 15 to September 15. Gate hours will be from 8 A.M. to 10 P.M. Central Daylight Saving Time.

Entrance permits may be obtained at the Slade Refuge Headquarters, two miles south and two miles east of Dawson. Admission will be by the $7 Golden Eagle Passport, $1 daily entrance permit, or $.50 walk-in permit. Persons under 16 are admitted free.

The Golden Eagle Passport entitles the purchaser to enter several thousand Federal recreation areas by private vehicle, an unlimited number of times, and take all his passengers with him. The Passport is valid through March, 1968.

This great outdoor recreation bargain includes admissions to recreation areas in our National parks, forests, wildlife refuges and reservoirs, and public lands.

And the bargain truly is a contribution to conservation. Every Golden Eagle dollar goes into the Land and Water Conservation Fund which was established by Congress specifically to increase recreation opportunities for everyone. Since its inception in 1965, more than $158 million has

(MORE)

been apportioned from the Fund as matching grants to assist States in more than 1,000 recreation projects. Approximately $85 million has been appropriated by Congress to add to our national parks, forests and wildlife refuges, and establish new national recreation areas.

May 4, 1967
Sent to:
The Steele Ozone
Napoleon Homestead
Bismardk Tribune (sent 5/8/67)

Steele Ozone
May 10, 1967

Slade Refuge Recreation Area Named Fee Area

Entrance fees will be charged at the Lake Isabel Recreation Area on Slade National Wildlife Refuge reports Refuge Manager Marvin Mansfield. The area is available for public use from May 15 to September 15. Gate hours will be from 8 A. M. to 10 P. M. Central Daylight Saving Time.

Entrance permits may be obtained at the Slade Refuge Headquarters, two miles south and two miles east of Dawson. Admission will be by the $7 Golden Eagle Passport, $1 daily entrance permit or 50 cent walk-in permit. Persons under 16 are admitted free.

The Golden Eagle Passport entitles the purchaser to enter several thousand Federal Recreation areas by private vehicle, an unlimited number of times, and take all his passengers with him. The Passport is valid through March, 1968.

This great outdoor recreation bargain includes admissions to recreation areas in our National parks, forest, wildlife refuges and reservoirs and public lands.

And the bargain truly is a contribution to conservation. Every Golden Eagle dollar goes into the Land and Water Commission Fund which was established by Congress specifically to increase recreation opportunities for everyone. Since its inception in 1965, more than $158 million has been apportioned from the fund as matching grants to assist states in more recreation projects. Approximately $85 million has been appropriated by Congress to add to our national parks, forests and wildlife refuges, and establish new national recreation areas.

—oOo—

The Bismarck Tribune
May 9, 1967

To Charge Fees At Lake Isabel

Federal entrance fees will be charged at the Lake Isabel recreation area on the Slade National Wildlife Refuge near Dawson, refuge manager Marvin Mansfield announced Tuesday.

The area is available to public use from May 15-Sept. 15 and gate hours will be from 8 a.m. to 10 p.m. CDT.

Entrance permits may be obtained at the Slade Refuge headquarters, two miles south and two miles east of Dawson. Admission will be by the $7 Golden Eagle passport good for the entire season, a $1 daily entrance permit or a 50 cent walk-in permit. Persons under 16 are admitted free.

This is the first year for an entrance fee at Lake Isabel.

Only the federal area on the east side, about one-sixth of the shoreline, is in the area for which fees will be charged. Privately owned cabin sites are not involved.

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service Regional Information

BUREAU OF SPORT FISHERIES AND WILDLIFE

Slade National Wildlife Refuge
Dawson, North Dakota

COUNTIES RECEIVE MONEY FOR FEDERAL LANDS

DAWSON -- Checks were recently distributed to the five counties which have federal lands administered from Slade National Wildlife Refuge at Dawson. These lands consist of Waterfowl Production Areas and National Wildlife Refuges.

Refuge Manager Marvin Mansfield reports four of the counties received an increase over 1966, and all five had a substantial increase over 1965. This resulted from a new federal formula which allows payments to the counties on the basis of a share of receipts or a percentage of the adjusted costs of these lands.

The County check amounted to $. The Bureau of Sport Fisheries and Wildlife said the funds must be used solely for the benefit of public schools and roads.

Counties		Sent to	Date
Burleigh	$ 2,259.93	Bismarck Tribune, Bismarck, N. D.	10/11/67
Emmons	716.55	Emmons County Record, Linton, N. D.	10/11/67
Kidder	1,905.23	Steele Ozone, Steele, N. D.	10/11/67
Logan	455.54	Napoleon Homestead, Napoleon, N. D.	10/11/67
McIntosh	726.45	Ashley Tribune, Ashley, N. D.	10/11/67
		Wishek Star, Wishek, N. D.	10/11/67

The Emmons County Record
Linton, North Dakota
October 25, 1967

Counties Get Money For Federal Land

Checks have been distributed to the five counties which have federal lands administered from Slade National Wildlife Refuge at Dawson. These lands consist of Waterfowl Production Areas and National Wildlife refuges.

Refuge Manager Marvin Mansfield reports four of the counties received an increase over 1966, and all five had a substantial increase over 1965. This resulted from a new federal formula which allows payments to the counties on the basis of a share of receipts or a percentage of the adjusted costs of these lands.

The Emmons County check amounted to $716.55. The Bureau of Sport Fisheries and Wildlife said the funds must be used solely for the benefit of public schools and roads.

The Napoleon Homestead
Napoleon, North Dakota
October 18, 1967

Counties Receive Money For Federal Lands

DAWSON—Checks were recently distributed to the five counties which have federal lands administered from Slade National Wildlife Refuge at Dawson. These lands consist of Waterfowl Production Areas and National Wildlife Refuges.

Refuge Manager Marvin Mansfield reports four of the counties received an increase over 1966, and all five had a substantial increase over 1965.

The Logan County check amounted to $455.54. The Bureau of Sport Fisheries and Wildlife said the funds must be used solely for the benefit of public schools and roads.

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service Regional Information

BUREAU OF SPORT FISHERIES AND WILDLIFE

Slade National Wildlife Refuge
Dawson, North Dakota

NATIONAL WILDLIFE REFUGES TO BE OPEN TO DEER HUNTING

DAWSON -- Long Lake and Slade National Wildlife Refuges will again be open to deer gun hunting during the regular season. No other wildlife species may be taken.

Refuge Manager Marvin Mansfield reports that hunters will not be allowed to drive any vehicle on either refuge at any time. Formerly they were allowed to drive on Long Lake Refuge to pick up a dead deer, but this will no longer be permitted. In addition, deer will not be hauled out by refuge personnel at either refuge.

Long Lake Refuge extends from east of Moffit to southwest of Steele, and contains a fair to good deer herd. The manager reports the entire refuge is open except for an area in the general vicinity of refuge headquarters. The boundary of this area is posted with "Closed Area" signs.

Slade Refuge is located southeast of Dawson and contains only a fair deer population. It has no closed area except that hunters must stay 40 rods from occupied buildings.

Sent to:
The Bismarck, Tribune, Bismarck, No. Dak.
The Steele Ozone, Steele, No. Dak.
The Emmons County Record, Linton, No. Dak.
The Napoleon Homestead, Napoleon, No. Dak.

The Bismarck Tribune
November 7, 1967

Long Lake, Slade Will Be Open To Do-It-Yourself Deer Hunting

DAWSON—Long Lake and Slade National Wildlife Refuges will again be open to deer gun hunting during the regular season. No other wildlife species may be taken.

Refuge manager Marvin Mansfield reports that hunters will not be allowed to drive any vehicle on either refuge at any time. Formerly they were allowed to drive on Long Lake Refuge to pick up a dead deer, but this will no longer be permitted. In addition, deer will not be hauled out by refuge personnel at either refuge.

Long Lake Refuge extends from east of Moffit to southwest of Steele, and contains a fair to good deer herd. The manager reports the entire refuge is open except for an area in the general vicinity of refuge headquarters. The boundary of this area is posted with "Closed Area" signs.

Slade Refuge is located southeast of Dawson and contains only a fair deer population. It has no closed area except that hunters must stay 40 rods from occupied buildings.

Steele Ozone
November 8, 1967

REFUGES TO BE OPEN TO DEER HUNTING

Long Lake and Slade National Wildlife Refuges will again be open to deer gun hunting during the regular season. No other wildlife species may be taken.

Refuge Manager Marvin Mansfield reports that hunters will not be allowed to drive any vehicle on either refuge at any time. Formerly they were allowed to drive on Long Lake Refuge to pick up a dead deer, but this will no longer be permitted. In addition, deer will not be hauled out by refuge personnel at either refuge.

Long Lake Refuge extends from east of Moffit to southwest of Steele, and contains a fair to good deer herd. The manager reports the entire refuge is open except for an area in the general vicinty of refuge headquarters. The boundary of this area is posted with "Closed Area" signs.

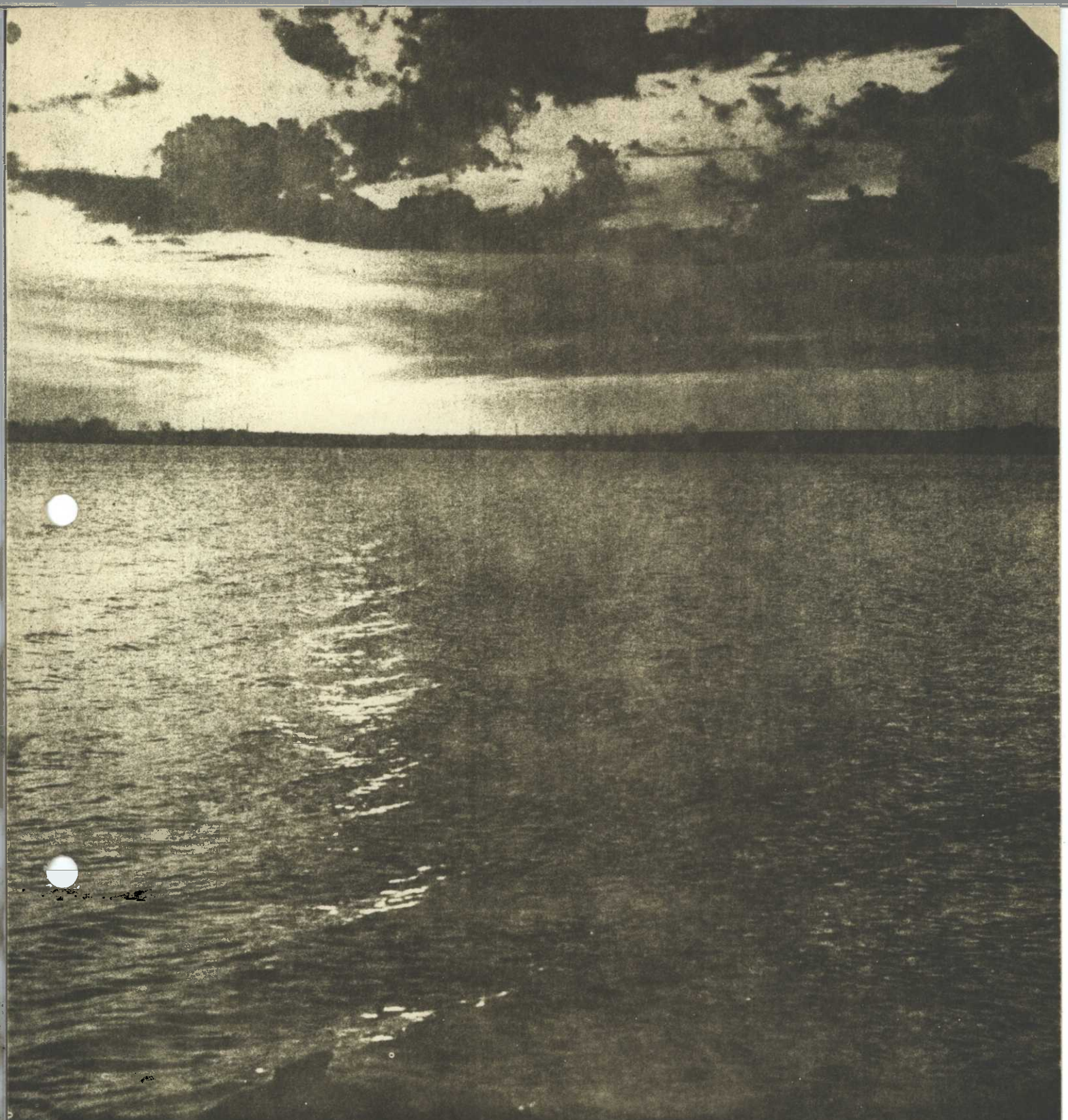
Slade Refuge is located southwest of Dawson and contains only a fair deer population. It has no closed area except that hunters must stay 40 rods from occupied buildings.

— o O o —

Cover picture for pamphlet issued
by the Extension Service, North Dakota
State University, Fargo, North Dakota
entitled "YOUTH for NATURAL BEAUTY"

June 1967

Looking west from refuge side - sunset
on Lake Isabel



YOUTH for NATURAL BEAUTY

EXTENSION SERVICE
NORTH DAKOTA STATE UNIVERSITY
FARGO, NORTH DAKOTA 58102

3-1750
Form NR-1
(Rev. March 1953)

WATERFOWL

REFUGE Slade MONTHS OF January TO April, 19 67

(1) Species	(2) Weeks of reporting period									
	1/1-7 1	1/8-14 2	1/15-21 3	1/22-28 4	1/29-2/4 5	2/5-11 6	2/12-18 7	2/19-25 8	2/26-3/4 9	3/5-11 10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada										
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard										
Black										
Gadwall										
Baldpate										
Pintail										
Green-winged teal										
Blue-winged teal										
Cinnamon teal										
Shoveler										
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy										
Other										
Coot:										

Int. Dup. Sec., Wash., D.C. 37944

3 -1750a
Cont. NR-1
(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE Klamath MONTHS OF January TO April, 1967

(1) Species	(2) Weeks of reporting period: 3/12-18 (11)	3/19-25 (12)	3/26-4/1 (13)	4/2-8 (14)	4/9-15 (15)	4/16-22 (16)	4/23-29 (17)	(18)	(3) Estimated waterfowl days use	(4) Production: Broods seen	Estimated total
Swans:											
Whistling			40	130	235	160	15		4,060		
Trumpeter											
Geese:											
Canada											
Cackling											
Brant											
White-fronted					10				70		
Snow											
Blue											
Other											
Ducks:											
Mallard		30	70	500	600	460	250		13,370		
Black											
Gadwall				120	290	280	170		5,780		
Baldpate				70	585	570	550		12,625		
Pintail			60	320	170	110	125		5,705		
Green-winged teal			30	105	85	110	130		3,220		
Blue-winged teal					50	40	40		910		
Cinnamon teal											
Shoveler				30	20	20	15		595		
Wood											
Redhead			20	210	1260	820	110		17,150		
Ring-necked				10	60	40	10		840		
Canvasback				20	290	260	30		4,200		
Scaup			20	200	1490	1080	760		24,950		
Goldeneye				5	15	10			210		
Bufflehead					5	10	10		175		
Ruddy							10		70		
Other Comm. Merganser				10	10	10			280		
Coot:						20	50		490		

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans	4,060	235	
Geese	70	10	
Ducks	89,670	4,230	
Coots	490	70	

SUMMARY

Principal feeding areas A-4, Hdqtrs. Lakes, South Marsh

Principal nesting areas

Reported by Marvin Mansfield, Refuge Manager

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.

(2) Weeks of Reporting Period: Estimated average refuge populations.

(3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.

(4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(5) Total Days Use: A summary of data recorded under (3).

(6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.

(7) Total Production: A summary of data recorded under (4).

Interior Duplicating Section, Washington, D. C.
1953

16242

3-1750
Form NR-1
(Rev. March 1953)

WATERFOWL

REFUGE Slate MONTHS OF May TO August, 19 67

(1) Species	Weeks of reporting period (2)									
	4/30-5/6 1	5/7-13 2	5/11-20 3	5/24-27 4	5/28-6/3 5	6/4-10 6	6/11-17 7	6/18-24 8	6/25-7/1 9	7/2-8 10
Swans:										
Whistling	5									
Trumpeter										
Geese:										
Canada										
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	250	220	130	90	90	90	120	120	150	190
Black										
Gadwall	60	70	60	50	50	50	50	50	70	90
Baldpate	210	200	70	10	10	10	10	10	10	10
Pintail	120	100	50	20	20	20	30	30	40	40
Green-winged teal	210	210	80	5	5	5	5	5	5	5
Blue-winged teal	90	100	120	110	110	110	110	110	170	170
Cinnamon teal										
Shoveler	100	90	80	70	40	40	40	50	50	60
Wood										
Redhead	250	220	50	20	20	20	20	30	30	40
Ring-necked	20	20	10	10						
Canvasback	50	40	20	10	10	10	10	20	20	20
Scaup	620	370	90	10	10	10	10	10	20	20
Goldeneye										
Bufflehead	10	10								
Ruddy	120	80	40	10	10	10	10	10	10	20
Other										
TOTALS	2,170	1,730	810	445	405	405	445	475	575	665
Coot:	190	150	80	50	50	50	50	50	70	70

Int. Dup. Sec., Wash., D.C. 37944

3-1750a
Cont. NR-1
(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUCE Slade MONTHS OF May TO August, 1967

(1) Species	(2) Weeks of reporting period 7/9-15 (11)	7/16-22 (12)	7/23-29 (13)	7/30-8/5 (14)	8/6-12 (15)	8/13-19 (16)	8/20-26 (17)	8/27-9/2 (18)	(3) Estimated waterfowl days use	(4) Production Broods: seen	Broods: Estimated total
Swans:											
Whistling									35		
Trumpeter											
Geese:											
Canada											
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other											
Ducks:											
Mallard	190	210	210	210	210	210	1,300	1,010	35,770	6	130
Black											
Gadwall	90	120	110	100	100	100	130	90	11,000	3	150
Baldpate	10	10	10	10	10	170	200	120	8,610	0	
Pintail	40	50	50	50	50	120	180	110	7,840	1	30
Green-winged teal	5	5	5	5	5	10	25	15	4,400	0	
Blue-winged teal	190	220	220	260	260	210	190	130	21,210	7	130
Cinnamon teal											
Shoveler	60	60	70	70	70	50	20	30	7,020	2	30
Wood											
Redhead	40	40	50	50	50	30	20	20	7,000	2	30
Ring-necked								5	855	0	
Canvasback	20	20	20	20	20	20	10	10	3,850	2	30
Scaup	20	20	20	20	20	10	10	10	3,170	1	15
Goldeneye											
Bufflehead									140		
Ruddy	20	20	20	20	20	20	15	35	3,430	1	15
[illegible] Totals	685	775	815	875	925	1,060	2,260	1,615	119,905		
Coots:	90	90	120	120	120	120	360	720	17,850	8	70

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans	35	5	
Geese			
Ducks	119,945	2,260	560
Coots	17,850	720	70

SUMMARY

Principal feeding areas Headquarters Lakes, South Marsh

Principal nesting areas South Marsh (West)

Reported by Marvin Mansfield, Refuge Manager

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.

(2) Weeks of Reporting Period: Estimated average refuge populations.

(3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.

(4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(5) Total Days Use: A summary of data recorded under (3).

(6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.

(7) Total Production: A summary of data recorded under (4).

Interior Duplicating Section, Washington, D. C.
1953

3-1751
Form NR-1A
(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)

Refuge Slade Months of January to April 1967

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Horned grebe	2	4/28	2	4/28						
Eared grebe	3	4/24	3	4/24						
White pelican	23	4/14	23	4/14						
Double-crested cormorant	3	4/14	12	4/22						
Great blue heron	2	4/18	2	4/18						
Black-crowned night heron	1	4/14	3	4/27						
Sandhill crane	12	3/30	60	4/5	25	4/11				
II. Shorebirds, Gulls and Terns:										
Herring gull	4	3/27	40	4/14						
Ring-billed gull	50	3/23	300	4/5						
Franklin's gull	25	4/27	25	4/27						
Avocet	1	4/26	1	4/26						
Marbled godwit	2	4/18	4	4/24						
Killdeer	2	3/29	4	4/21						

(over)

(1)	(2)		(3)		(4)	(5)	(6)
III. Doves and Pigeons:							
Mourning dove	1	3/27	20	4/29			
White-winged dove							
IV. Predaceous Birds:							
Golden eagle	1	3/21	1	3/21			
Duck hawk							
Horned owl	2 - 4	Present throughout period					
Magpie							
Raven							
Crow	1	3/9	500	3/30			
Marsh hawk	1	3/11	6	4/12			
Red-tailed hawk	1	3/30	3	4/21			
Rough-legged hawk	1	4/12	2	4/21			
Sparrow hawk	2	4/10	2	4/10			

Reported by Marvin Mansfield, Refuge Manager

INSTRUCTIONS

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.

3-1751
Form NR-1A
(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)

Refuge Slade Months of May to August 1967

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Horned Grebe			3	6/2						10
Eared Grebe			5	6/12					4	25
Western Grebe	2	5/8	2	5/8					5	20
Pied-billed Grebe			20	8/25					20	65
White Pelican			54	7/31						75
Double-crested Cormorant			97	8/25						125
Great Blue Heron			3	8/31						5
Black-crowned Night Heron			5	8/25						10
American Bittern	5	5/14	5	5/14						10
Sandhill Crane *	11	7/16	2,700	8/31						2,700
II. Shorebirds, Gulls and Terns:										
Herring Gull			10	5/4						75
Ring-billed Gull			35	5/9						140
Franklin's Gull			65	8/25						275
Avocet			5	5/2						15
Marbled Godwit			7	8/25	7	8/25				10
Willet	1	5/12	1	5/12	1	5/12				5
Killdeer			2	7/18	2	7/18				5
Common Tern	4	5/7	55	6/14						110
Black Tern	3	5/9	70	6/22						150

* Horsehead and Kunkle Lake Areas.

(over)

(1)	(2)		(3)		(4)	(5)	(6)
III. Doves and Pigeons:							
Mourning dove			75	August		50	175
White-winged dove							
IV. Predaceous Birds:							
Golden eagle							
Duck hawk							
Horned owl	2-3	Present throughout period					3
Magpie							
Raven							
Crow			2	8/25			5
Marsh Hawk			4	6/14			15
Red-tailed Hawk			3	8/21			10
Rough-legged Hawk			2	8/21			7
Sparrow Hawk			2	8/25			10

Reported by Marvin Mansfield, Refuge Manager

INSTRUCTIONS

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.

3-1750b
Form NR-1B
(Rev. Nov. 1957)

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE

WATERFOWL UTILIZATION OF REFUGE HABITAT

Refuge Slade — For 12-month period ending August 31, 1967

Reported by Marvin Mansfield — Title Refuge Manager

(1) Area or Unit Designation	(2) Habitat Type	(2) Habitat Acreage		(3) Use-days	(4) Breeding Population	(5) Production
I	Crops	70	Ducks	45,458	80	85
	Upland	435	Geese			
	Marsh	15	Swans			
	Water	80	Coots	29,379	15	20
	Total	600	Total	74,837	95	105
II	Crops	10	Ducks	76,923	90	105
	Upland	415	Geese			
	Marsh	10	Swans	2,022		
	Water	70	Coots	820	10	15
	Total	500	Total	79,765	100	120
III	Crops	100	Ducks	82,194	160	180
	Upland	660	Geese	2,170		
	Marsh	110	Swans	2,053		
	Water	365	Coots	2,310	10	15
	Total	1,235	Total	89,327	170	195
IV	Crops	135	Ducks	46,430	170	190
	Upland	315	Geese			
	Marsh	130	Swans			
	Water	85	Coots	10,361	15	20
	Total	665	Total	64,771	185	210
TOTALS	Crops	315	Ducks	250,985	500	560
	Upland	1,820	Geese	2,170		
	Marsh	265	Swans	5,075		
	Water	600	Coots	50,470	50	70
	Total	3,000	Total	308,700	550	630
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			

(over)

INSTRUCTIONS

All tabulated information should be based on the best available techniques for obtaining these data. Estimates having no foundation in fact must be omitted. Refuge grand totals for all categories should be provided in the spaces below the last unit tabulation. Additional forms should be used if the number of units reported upon exceeds the capacity of one page. This report embraces the preceding 12-month period, NOT the fiscal or calendar year, and is submitted annually with the May-August Narrative Report.

(1) Area or Unit: A geographical unit which, because of size, terrain characteristics, habitat type and current or anticipated management practices, may be considered an entity apart from other areas in the refuge census pattern. The combined estimated acreages of all units should equal the total refuge area. A detailed map and accompanying verbal description of the habitat types of each unit should be forwarded with the initial report for each refuge, and thereafter need only be submitted to report changes in unit boundaries or their descriptions.

(2) Habitat: Crops include all cultivated croplands such as cereals and green forage, planted food patches and agricultural row crops; upland is all uncultivated terrain lying above the plant communities requiring seasonal submergence or a completely saturated soil condition a part of each year, and includes lands whose temporary flooding facilitates use of non-aquatic type foods; marsh extends from the upland community to, but not including, the water type and consists of the relatively stable marginal or shallow-growing emergent vegetation type, including wet meadow and deep marsh; and in the water category are all other water areas inundated most or all of the growing season and extending from the deeper edge of the marsh zone to strictly open-water, embracing such habitat as shallow playa lakes, deep lakes and reservoirs, true shrub and tree swamps, open flowing water and maritime bays, sounds and estuaries. Acreage estimates for all four types should be computed and kept as accurate as possible through reference to available maps supplemented by periodic field observations. The sum of these estimates should equal the area of the entire unit.

(3) Use-days: Use-days is computed by multiplying weekly waterfowl population figures by seven, and should agree with information reported on Form MR-1.

(4) Breeding Population: An estimate of the total breeding population of each category of birds for each area or unit.

(5) Production: Estimated total number of young raised to flight age.

Interior Duplicating Section, Washington, D. C. 27580

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

1613

Refuge Slade Months of January to April, 1967

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-necked pheasant	Crop - 300 Ac. Grass and Marsh 2,100 Ac.	120			50:50				20	
Sharp-tailed grouse	" " "	28			50:50				85	Birds moved in during winter to feed in excellent corn stand.
Grey partridge	" " "	120			50:50				20	

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

(1) SPECIES: Use correct common name.

(2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.

(4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.

(5) REMOVALS: Indicate total number in each category removed during the report period.

(6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

1613

Refuge Slade Months of May to August, 1947

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
	Crop - 300 Ac. Grass and Marsh - 2,100 Ac.									
Ring-necked Pheasant	" " "	69	1	20	50:50				35	
Sharp-tailed Grouse	" " "	53	-	25	50:50				45	
Grey Partridge	" " "	80	1	20	50:50				30	

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

(1) SPECIES: Use correct common name.

(2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.

(4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.

(5) REMOVALS: Indicate total number in each category removed during the report period.

(6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

3-1754
Form NR-4
(June 1945)

SMALL MAMMALS

Refuge Slade Year ending April 30, 1967

(1) Species	(2) Density		(3) Removals					(4) Disposition of Furs						(5)
								Share Trapping						
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator * Control	For Re-stocking	For Re-search	Permit Number	Trappers Share	Refuge share	Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	Total Population
Mink				None				None						6
Raccoon					12									10
Striped skunk					6									12
Badger					None									5
Weasel (long-tailed)				None										8
Red fox					None									8
Muskrat				None										10

* List removals by ~~Predator Animal~~ Hunter Refuge Personnel

REMARKS:

Reported by Marvin Mansfield, Refuge Manager

INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

(1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)

(2) DENSITY: Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headingslisted.

(4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.

(5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.

REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

3-1750
Form NR-1
(Rev. March 1953)

WATERFOWL

REFUGE Slade MONTHS OF September TO December, 19 67

(1) Species	(2) Weeks of reporting period: 9/3-9 (1)	9/10-16 (2)	9/17-23 (3)	9/24-30 (4)	10/1-7 (5)	10/8-14 (6)	10/15-21 (7)	10/22-28 (8)	10/29-11/4 (9)	11/5-11 (10)
Swans:										
Whistling							60	80	100	30
Trumpeter										
Geese:										
Canada										
Cackling Small C.				12	35	35	30	25	6	
Brant										
White-fronted					10					
Snow										
Blue										
Other										
Ducks:										
Mallard	690	270	200	140	290	410	510	1,640	1,890	200
Black										
Gadwall	70	40	30	20	30	30	120	80	15	
Baldpate	100	80	50	20	20	15	20	30	45	
Pintail	70	30	15	5	20	30	20	20	20	
Green-winged teal	10	5	5	5	5		10			
Blue-winged teal	100	70	40	25	20	10	10			
Cinnamon teal										
Shoveler	40	50	60	70	60	50	20	20	20	
Wood										
Redhead	20	20	20	20	60	90	70	60	45	
Ring-necked	5	5	20	30	25	10				
Canvasback	15	20	30	45	130	245	360	240	95	
Scaup	10	10	20	20	20	25	30	50	70	
Goldeneye										
Bufflehead						5	5	20	30	
Ruddy	50	70	50	20	50	80	15	10		
Other Hooded Merganser							2	4	4	
TOTAL DUCKS	1,180	670	540	420	730	1,000	1,192	2,174	2,234	200
Coot:	880	1,050	1,100	1,200	980	850	310	160	30	

Int. Dup. Sec., Wash., D.C. 37944

3-1750a
Cont. NR-1
(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE **Slade** MONTHS OF **September** TO **December**, 19**67**

(1) Species	(2) Weeks of reporting period: 11/12-18	11/19-25	12	13	14	15	16	17	18	(3) Estimated waterfowl days use	(4) Production Broods seen	(4) Production Estimated total
Swans:												
Whistling										1,890		
Trumpeter												
Geese:												
Canada												
Cackling										1,001		
Brant												
White-fronted										70		
Snow												
Blue												
Other												
Ducks:												
Mallard	300		40							46,060	6	
Black												
Gadwall										3,045	8	
Baldpate										2,660		
Pintail										1,610	1	
Green-winged teal										280		
Blue-winged teal										1,925	7	
Cinnamon teal												
Shoveler										2,730	2	
Wood												
Redhead										2,835	2	
Ring-necked										665		
Canvasback										8,260	2	
Scaup										1,785	1	
Goldeneye												
Bufflehead										420		
Ruddy										2,415	1	
Other **Hooded Merganser**										70		
Coots:											8	

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans	1,890	100	
Geese	1,071	45	
Ducks	74,760	2,234	
Coots	45,920	1,200	

SUMMARY

Principal feeding areas A-4, NW Slough, Harker Lake, Upper Harker Lake

Principal nesting areas

Reported by Marvin Mansfield

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.

(2) Weeks of Reporting Period: Estimated average refuge populations.

(3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.

(4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(5) Total Days Use: A summary of data recorded under (3).

(6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.

(7) Total Production: A summary of data recorded under (4).

Interior Duplicating Section, Washington, D. C.
1953

3-1751
Form NR-1A
(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)

Refuge Slade Months of September to December 1967

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Eared grebe			11	10/10	4	10/18				15
Western grebe			2	9/26	2	9/26				20
Pied-billed grebe			18	9/11	5	10/18				60
White pelican			35	9/26	35	9/26				50
Double-crested cormorant			350	10/5	1	10/18				400
Great blue heron			5	9/11	1	10/18				10
Black-crowned night heron			2	10/10	2	10/10				5
Sandhill crane*			10,000	10/20	40	11/6				16,000
II. Shorebirds, Gulls and Terns:										
Wilson's snipe			1	10/18	1	10/18				10
Herring gull			6	10/3	2	10/16				25
Ring-billed gull			17	9/26	4	10/30				40
Franklin's gull			37	10/10	20	10/30				150
Avocet			4	10/10	4	10/10				50
Common tern			20	9/26	5	10/10				40
Greater yellow-legs			2	9/26	2	9/26				30

*Horsehead and Kunkle Lake areas.

(over)

(1)	(2)	(3)		(4)		(5)	(6)
III. Doves and Pigeons:							
Mourning dove		65	9/1	4	9/21		150
White-winged dove							
IV. Predaceous Birds:							
Golden eagle		1	9/26	1	9/26		1
Duck hawk							
Horned owl		2 - 3 present throughout the period					5
Magpie							
Raven							
Crow		400	10/4	400	10/4		700
Red-tailed hawk		2	9/30	1	11/2		4
Rough-legged hawk		1	10/7	1	10/7		3
Marsh hawk		2	10/10	2	10/10		10
Short-eared owl		1	10/10	1	10/10		2

Reported by Marvin Mansfield

INSTRUCTIONS

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiforme
II. Shorebirds. Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total ber of the species using the r ge during the period concerned.

INT.-DUP. SEC., WASH., D.C.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

Refuge Slade Months of September to December, 19 67

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-necked pheasant	Crop - 300 acres Grass and Marsh - 2,100 acres	80			50:50				30	
Sharp-tailed grouse	" "	30			50:50				80	Birds move in during winter to feed on corn.
Gray partridge	" "	96			50:50				25	

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

(1) SPECIES: Use correct common name.

(2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.

(4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.

(5) REMOVALS: Indicate total number in each category removed during the report period.

(6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

Form NR-3
(June 1945)

BIG GAME

Refuge Slade Calendar Year 1967

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions		(7) Estimated Total Refuge Population		(8) Sex Ratio
Common Name	Cover types, total Acreage of Habitat	Number	Hunting	For Re-stocking	Sold	For Research	Predation	Disease	Winter Loss	Number	Source	At period of Greatest use	As of Dec. 31	
White-tailed deer	Crop - 300 acres, Grass and marsh - 2100 acres Trees and brush - 50 acres	10	2									20	5	1:4

Remarks:

Reported by Marvin Mansfield

INSTRUCTIONS

Form NR-3 - BIG GAME

(1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.

(2) DENSITY: Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated total number of young produced on refuge.

(4) REMOVALS: Indicate total number in each category removed during the year.

(5) LOSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.

(6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.

(7) TOTAL REFUGE POPULATION: Give the estimated population of <u>each</u> <u>species</u> on the refuge at period of its greatest abundance and also as of Dec. 31.

(8) SEX RATIO: Indicate the percentage of males and females of each species as determined from field observations or through removals.

116008

3-1755
Form NR-5

DISEASE

Refuge Slade Year 19 67

Botulism — NONE

Period of outbreak _____

Period of heaviest losses _____

Losses:

	Actual Count	Estimated
(a) Waterfowl		
(b) Shorebirds		
(c) Other		

Number Hospitalized	No. Recovered	% Recovered
(a) Waterfowl		
(b) Shorebirds		
(c) Other		

Areas affected (location and approximate acreage) _____

Water conditions (average depth of water in sickness areas, reflooding of exposed flats, etc.

Condition of vegetation and invertebrate life _____

Remarks _____

Lead Poisoning or other Disease — NONE

Kind of disease _____

Species affected _____

Number Affected Species	Actual Count	Estimated

Number Recovered _____

Number lost _____

Source of infection _____

Water conditions _____

Food conditions _____

Remarks _____

INT.-DUP., D.C.- 53818-59

NR-6

Bureau of Sport Fisheries and Wildlife

PUBLIC RELATIONS

(See Instructions on Reverse Side)

Refuge Slade Calendar Year 1967

1. Visits

a. Hunting 40 b. Fishing 50 c. Miscellaneous 5,346 d. TOTAL VISITS 5,436

1a. Hunting (on refuge lands)

TYPE	HUNTERS	ACRES	MANAGED BY
Waterfowl			
Upland Game			
Big Game	20		Refuge
Other			

Number of permanent blinds _____

Man-days of bow hunting included above _____

Estimated man-days of hunting on lands adjacent to refuge 800

1b. Fishing (area open to fishing on refuge lands)

TYPE OF AREA	ACRES	MILES
Ponds or Lakes		
[redacted] Shores (Lake Isabel)		1

1c. Miscellaneous Visits

Recreation 5,241* Official 25

Economic Use 80 Industrial _____

2. Refuge Participation (groups)

TYPE OF ORGANIZATION	On Refuge NO. OF GROUPS	On Refuge NUMBER IN GROUPS	Off Refuge NO. OF GROUPS	Off Refuge NUMBER IN GROUPS
Sportsmen Clubs				
Bird and Garden Clubs				
Schools			1	75
Service Clubs			1	49
Youth Groups	6	338		
Professional-Scientific				
Religious Groups				
State or Federal Govt.				
Other				

3. Other Activities

TYPE	NUMBER	TYPE	NUMBER
Press Releases	5	Radio Presentations	
Newspapers (P.R.'s sent to)	6	Exhibits	
TV Presentations		Est. Exhibit Viewers	

3-1756
(Rev. 4/63)

*Includes 416 4-H campers

3-1757
Form NR-7
(Rev. June 1960)

NONAGRICULTURAL COLLECTIONS, RECEIPTS, AND PLANTINGS (1)

Refuge Slade Year 19 67

Species	Collections and Receipts (Seeds, rootstocks, trees, shrubs)						Plantings (Marsh - Aquatic - Upland)						
	Amount (Lbs., bus., etc.)	(2) C or R	Date	Method or Source	Cost	(3) Total Amount on Hand	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount and Nature of Propagules	Date	Survival	Cause of Loss
Eastern Red Cedar	1,000 Seedlings	R	April	Purchase	30.00	None	NW Slough Shelterbelt	660/ac.	1.5	1,000 (seedlings)	April	10%	Drought

(1) Report agronomic farm crops on Form NR-8
(2) C = Collections and R = Receipts
(3) Use "S" to denote surplus

Total acreage planted:
Marsh and aquatic _____
Hedgerows, cover patches _____
Food strips, food patches _____
Forest plantings 1.5 acres

Remarks: _____

76148

3-1758
Form NR-8
(Rev. Jan. 1956)

sh and Wildlife Service Bran of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge **Slade** County **Kidder** State **North Dakota**

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return Harvested		Government's Share or Return Unharvested		Total Acreage Planted	Green Manure, Cover and Waterfowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Acres	Bu./ Tons	Acres	Bu. /Tons			
Wheat	**108.6**	**543**	**13.6**	**100**			**122.2**	**Alfalfa**	**65**
Oats	**75.1**	**1125**					**75.1**	**Sweet Clover**	**25**
Corn					**25**	**125**	**25.0**		
Barley			**10.0**	**65**	**10.4**	**45**	**20.4**		
								Fallow Ag. Land.	

No. of Permittees: Agricultural Operations **3** Haying Operations **12*** Grazing Operations **3**

***Drought Emergency**

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	Grazing	Number Animals	AUM'S	Cash Revenue	ACREAGE
Bromegrass	**449.36**	**425**	**674.06**	1. Cattle	**122**	**335.53**	**694.55**	**650**
				2. Other				
				1. Total Refuge Acreage Under Cultivation				**333**
Hay - Wild				2. Acreage Cultivated as Service Operation				**—**

DIRECTIONS FOR PREPARING FORM NR--8'
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only thenumber of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvesed column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops Specify the acreage kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting

Total Refuge Acreage Under Cultivation Report total land area devoted to agricultural purposes during the year.

3-1758
Form NR-8
(Rev. Jan. 1956)

sh and Wildlife Service Bran of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge **Florence Lake** County **Burleigh** State **North Dakota**

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Waterfowl Browsing Crops Type and Kind	Total Acreage
			Harvested		Unharvested				
	Acres	Bu./Tons	Acres	Bu./ Tons	Acres	Bu. /Tons			
Wheat	**29.4**	**150**					**29.4**	**Sweet Clover**	**7**
Flax	**10**	**30**					**10.0**		
Corn					**8.6**	**40**	**8.6**		
								Fallow Ag. Land.	**18.2**

No. of Permittees: Agricultural Operations **1** Haying Operations **2*** Grazing Operations **2**

***Drought Emergency**

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	Grazing	Number Animals	AUM'S	Cash Revenue	ACREAGE
				1. Cattle	**107**	**291.05**	**602.47**	**960**
				2. Other				
				1. Total Refuge Acreage Under Cultivation				**73**
Hay - Wild	**28.96**	**32**	**44.44**	2. Acreage Cultivated as Service Operation				**—**

DIRECTIONS FOR PREPARING FORM NR--8'
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only thenumber of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvesed column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops Specify the acreage kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting

Total Refuge Acreage Under Cultivation Report total land area devoted to agricultural purposes during the year.

3-1570
NR-88
(4/54)

REFUGE GRAIN REPORT

Refuge Slade Months of January through December, 1957

(1) Variety*	(2) On Hand Beginning of Period	(3) Received During Period	(4) Total	(5) Grain Disposed of				(6) On Hand End of Period	(7) Proposed or Suitable Use*		
				Transferred	Seeded	Fed	Total		Seed	Feed	Surplus
Barley	315	245	560			495	495	65		65	
Wheat	0	100	100					100		100	

(8) Indicate shipping or collection points

(9) Grain is stored at Slade Refuge

(10) Remarks

*See instructions on back.

NR-8a

REFUGE GRAIN REPORT

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

(1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR–9.

(3) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.

(4) A total of columns 2 and 3.

(6) Column 4 less column 5.

(7) This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.

(8) Nearest railroad station for shipping and receiving.

(9) Where stored on refuge: "Headquarters granary," etc.

(10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

INT.-DEP. SEC., WASH., D.C. 17065

3-1979 (NR-12)
(9/63)

Bureau of Sport Fisheries and Wildlife

ANNUAL REPORT OF PERSTICIDE APPLICATION

Refuge: Slade

Proposal Number:

Reporting Year: 1967

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
6/5	Leafy Spurge	7 scattered patches ranging in size from 20 sq. ft. to 10,000 sq. ft.	.45	Torden	2 quarts	2 lbs./A.	Water 40 gal/A	Hand Pump
6/15	Poison Ivy	Recreation Area	.50	Trysben 200	1 quart	½ lb./A.	Water 25 gal/A	Hand Pump
8/30	Leafy Spurge	5 scattered patches from 100 sq. ft. to 10,000 sq. ft.	.35	Torden	1.5 quarts	2¼ lbs./A.	Water 40 gal/A	Hand Pump

10. Summary of results (continue on reverse side, if necessary)

(a) First years results: (spurge)

1. Date and amount of first rainfall	1. 6/6 .10"
2. Date of first observation	2. 6/15
3. Date first effects noted	3. 6/15
4. Character of symptoms	4. Plants shrivelled
5. Date of examination and percent of apparent kill	5. 7/14 95%
6. Date of follow-up observation and percent regrowth	6. 8/25 20%
7. Date of examination and percent of real kill	7. 8/25 80%
8. Cost of chemical, equipment, labor: total and per acre cost	8. $28.00; $7.00; $29.00 — total $64.00 or $80.00/acre

35500

(Over)

(a) First years results: (poison ivy)

1.	Date and amount of first rainfall	1. 6/19 .18"
2.	Date of first observation	2. 7/6
3.	Date first effects noted	3. 7/6
4.	Character of symptoms	4. Leaves yellowish
5.	Date of examination and percent of apparent kill	5. 7/6 95%
6.	Date of follow-up observation and percent regrowth	6. 7/19 7%
7.	Date of examination and percent of real kill	7. 7/19 93%
8.	Cost of chemical, equipment, labor: Total and per acre cost	8. $2.25; $1.50; $4.75 — total $8.50 or $17.00/acre